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AICPA
American Institute of Certified Public Accountants

AUDIT AND ACCOUNTING GUIDE

CONSTRUCTION CONTRACTORS

PREPARED BY THE CONSTRUCTION CONTRACTOR GUIDE COMMITTEE

Including
STATEMENT OF POSITION
ISSUED BY THE ACCOUNTING STANDARDS DIVISION

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NOTICE TO READERS

This audit and accounting guide presents recommendations of the AICPA Construction Contractor Guide Committee regarding the application of generally accepted auditing standards to audits of financial statements of entities in the construction contractor industry. The recommendations represent the considered opinion of the committee on the best auditing practice in the industry and have been reviewed by members of the AICPA Auditing Standards Board for consistency with existing auditing standards. AICPA members may have to justify departures from the recommendations if their work is challenged.

This audit and accounting guide also includes descriptions of, and recommendations on, specialized accounting and reporting principles and practices for the construction contractor industry. The descriptions and recommendations may refer to an FASB statement or interpretation, an APB opinion, or an accounting research bulletin, all of which are pronouncements enforceable under rule 203 of the AICPA Code of Professional Ethics. Although this guide does not have the authority of those pronouncements, it is intended to be helpful in determining whether financial statements are in conformity with generally accepted accounting principles. Statement on Auditing Standards No. 5, *The Meaning of "Present Fairly in Conformity With Generally Accepted Accounting Principles" in the Independent Auditor's Report*, identifies AICPA guides as sources of established accounting principles that an AICPA member should consider.

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Preface

This guide supersedes the AICPA industry audit guide, *Audits of Construction Contractors*, which was published in 1965 as a combination of an accounting guide and an auditing guide that the AICPA had published separately in 1959. Since its issuance, *Audits of Construction Contractors* has served as an authoritative guide for accounting, auditing, and financial reporting in the construction industry; within the industry, both issuers and users of financial statements use the guide as a manual.

However, since the guide was issued, the construction industry and the environment of business and financial reporting have changed substantially. The size, sophistication, and complexity of the industry have increased over the years, and the industry is still growing in each of these ways. Growth in the U.S. economy has produced changes in the forms and uses of contractual arrangements for the production and delivery of goods and services.

Changes in the business and financial reporting environments have increased the complexities of accounting for contracts and created the need for additional guidance in the application of generally accepted accounting principles and generally accepted auditing standards in the construction industry. For example, the increasing tendency of contractors to combine in a joint venture to perform an individual contract or series of contracts creates questions that need to be addressed and resolved.

Official pronouncements establishing generally accepted accounting principles and generally accepted auditing standards have been issued at an increasing rate. Since the original material included in *Audits of Construction Contractors* was prepared, all the opinions and statements of the AICPA Accounting Principles Board (APB) and the statements and interpretations of its successor body, the Financial Accounting Standards Board (FASB), have been issued. The AICPA's study group on the objectives of finan-

cial statements and the FASB have clarified and expanded the objectives of financial statements and financial reporting. The Securities and Exchange Commission (SEC) has issued numerous accounting series releases and staff accounting bulletins on financial accounting and reporting. The AICPA Accounting Standards Division has issued a number of recommendations. The AICPA Auditing Standards Board and its predecessors have issued numerous pronouncements that have significantly expanded the interpretations of generally accepted auditing standards. Those pronouncements affect in numerous ways financial reporting and auditing in the construction industry but are not covered in the 1965 guide.

This guide applies to financial reporting and auditing in the construction industry, although the guidance provided may be useful in other industries for companies whose business involves construction-type contracts. It has been prepared

- To provide background information on the nature and characteristics of the construction industry.
- To update the previous guide to cover all pertinent pronouncements to date of the APB, FASB, SEC, and other standard-setting bodies.
- To assist contractors in applying generally accepted accounting principles.
- To assist the independent auditor in applying generally accepted auditing standards and his knowledge of generally accepted accounting principles to his determination of whether generally accepted accounting principles have been applied by management, which has the primary responsibility for financial statements.

A statement of position, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts*, is being issued concurrently with this guide. The statement of position is included as an appendix to this document, and its recommendations on accounting for performance of construction-type contracts are an integral part of this guide.

Transition

An accounting change from the completed-contract method or from the percentage-of-completion method to conform to the recommendations of this guide should be made retroactively by restating the financial statements of prior periods. The restatement should be made on the basis of current information if historical information is not available. If the information for restatement of prior periods is not available on either a historical or current basis, financial statements and summaries should be restated for as many consecutive prior periods preceding the transition date of this guide as is practicable, and the cumulative effect on the retained earnings at the beginning of the earliest period restated (or at the beginning of the period in which the guide is first applied if it is not practicable to restate any prior periods) should be included in determining net income for that period (see paragraph 20 of APB Opinion 20, *Accounting Changes*).

Accounting changes to conform to the recommendations of this guide, other than those in the preceding paragraph, should be made prospectively for contracting transactions, new contracts, and contract revisions entered into on or after the effective date of this guide. The division recommends the application of the provisions of this guide for fiscal years, and interim periods in such fiscal years, beginning after June 30, 1981. The division encourages earlier application of this guide, including retroactive application to all contracts regardless of when they were entered into. Disclosures should be made in the financial statements in the period of change in accordance with paragraph 28 of APB Opinion 20.

Chapter 1

Industry Background

One of the objectives of revising and updating the 1965 audit guide for construction contractors is to provide contractors, accountants, and users of financial statements with adequate background material on the nature of the industry, operations in the industry, and its terminology. For that purpose, this chapter describes and discusses the general characteristics of the industry, the operating features of companies in the industry, and the business environment in which they operate.

This chapter is intended as background for the presentation of recommendations and guidance on financial reporting and auditing in the industry. It does not contain recommendations or guidance on the technical application of generally accepted accounting or auditing standards. Recommendations and guidance on technical accounting and auditing issues are presented in the chapters that follow and in the statement of position, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts* (the SOP).

Nature and Significance of the Industry

The construction industry consists of individuals and companies that are engaged in diverse types of activities defined as construction in the *Standard Industrial Classification Manual.* The 1977 census of construction industries, as reported in the *Statistical Abstract of the United States—1979*, classified construction establishments into general building contractors, heavy construction contractors (including highway and street construction), and fifteen different classes of specialty contractors (such as plumbing, heating, and air conditioning; electrical; roofing and sheet metal work).

The data presented indicate that the construction industry is a significant factor in the U.S. economy. It represents billions of dollars of economic activity, consists of several hundred thousand business entities widely dispersed throughout the country, employs a large labor force, and contributes a relatively constant percentage (approximately 5 percent) to the gross national product.

Construction contractors may be distinguished by their size, the type of construction activity they undertake, and the nature and scope of their responsibility for a construction project. Although the construction industry also encompasses large, multinational contractors that undertake construction of billion-dollar projects, most business entities in the industry are small, local businesses whose activities are limited to a small geographical area. The large number of small entities in the industry may be attributed to the ease of entry into many phases of the construction industry and to the limited amount of capital required. The diverse types of business activities conducted by construction contractors include construction of buildings, highways, dams, and bridges; installation of machinery and equipment; dredging; and demolition. Many companies are able to meet the demands of large construction projects by combining their efforts in joint ventures.

A contractor may engage in those activities as a general contractor, a subcontractor, or a construction manager. A *general contractor* is a prime contractor who enters into a contract with the owner of a project for the construction of the project and who takes full responsibility for its completion, although he may enter into subcontracts with others for the performance of specific parts or phases of the project. A *subcontractor* is a second-level contractor who enters into a contract with a prime contractor to perform a specific part or phase of a construction project. A subcontractor's performance responsibility is to the general contractor, with whom the subcontractor's relationship is essentially the same as that of the prime contractor to the owner of the project. A *construction manager* is a contractor who enters into an agency contract with an owner of a construction project to supervise and coordinate the construction activity on the project, including negotiating contracts with others for all the construction work.

The organizational structure, resources, and capabilities of contractors tend to vary with the type of activity. Each type of contractor can pose different accounting and auditing problems.

Features of the Business Environment

Contractors operate in a business environment that differs in some respects from that of other types of businesses. The features of the business environment are discussed in this section in terms of characteristics common to contractors, types of contracts, bonding and surety underwriting, project ownership and rights of lien, contract changes, financing considerations, the use of joint ventures to accomplish objectives, and reporting for financial and income tax purposes.

Characteristics Common to Contractors

Although the construction industry is difficult to define because of its diversity, certain characteristics are common to companies in the industry. The most basic characteristic is that work is performed under contractual arrangements with customers. A contractor, regardless of the type of construction activity or the type of contractor, typically enters into an agreement with a customer to build or to make improvements on a tangible property to the customer's specification. The contract with the customer specifies the work to be performed, specifies the basis of determining the amount and terms of payment of the contract price, and generally requires total performance before the contractor's obligation is discharged. Unlike the work of many manufacturers, the construction activities of a contractor are usually performed at job sites owned by customers rather than at a central place of business, and each contract usually involves the production of a unique property rather than repetitive production of identical products.

Other characteristics common to contractors and significant to accountants and users of financial statements include the following:

- A contractor normally obtains the contracts that generate revenue or sales by bidding or negotiating for specific projects.
- A contractor bids for or negotiates the initial contract price based on an estimate of the cost to complete the project and the desired profit margin, although the initial price may be changed or renegotiated.
- A contractor may be exposed to significant risks in the performance of a contract, particularly a fixed-price contract.
- Customers frequently require a contractor to post a performance

and a payment bond as protection against the contractor's failure to meet performance requirements.

- The costs and revenues of a contractor are typically accumulated and accounted for by individual contracts or contract commitments extending beyond one accounting period, which complicates the management, accounting, and auditing processes.

Types of Contracts

The nature of a contractor's risk exposure varies with the type of contract. The several types of contracts used in the construction industry are described and illustrated in Appendix B of the SOP. The four basic types of contracts used based on their pricing arrangements are fixed-price or lump-sum contracts, unit-price contracts, cost-type contracts, and time-and-materials contracts.

- A fixed-price or lump-sum contract provides for a single price for the total amount of work to be performed on a project.
- A unit-price contract provides that a contractor will perform a specific project at a fixed price per unit of output.
- A cost-type contract (including cost-plus) provides for reimbursement of allowable or otherwise defined costs incurred plus a fee for the contractor's services. Usually, the contract only requires that the contractor's best efforts be used to accomplish the scope of the work. Cost-type contracts take a variety of forms. The contracts often contain terms specifying reimbursable costs, overhead recovery percentages, and fees. The fee may be fixed or based on a percentage of reimbursable costs.
- A time-and-materials contract is similar to a cost-plus contract and generally provides for payments to the contractor on the basis of direct labor hours at fixed hourly rates (the rates cover the costs of indirect labor and indirect expenses and profit) and cost of materials or other specified costs.

All types of contracts may be modified by target penalties and incentives relating to factors such as completion dates, plant capacity on completion of the project, and underruns and overruns of estimated costs.

Bonding and the Surety Underwriting Process

Contractors bidding on or negotiating a contract may be required to make a deposit for the use of the plans and specifications

for the project. Before they are allowed to submit bids, those seeking prime contracts may be required to post a bid security bond or make a deposit, usually in the form of a bank-guaranteed check, equal to a percentage of the total cost estimated in the feasibility study. On virtually all public work and on some private work, bid security is usually required to provide some assurance that only qualified, responsible contractors submit bids. In the construction industry, bid security bonds, as well as performance bonds and payment bonds, are provided by surety companies.

A bid bond issued by a surety does not guarantee that the contractor will sign a contract or guarantee that the surety will issue a performance bond. The contractor and surety promise the owner that if the contractor who is awarded the contract does not sign the contract or cannot provide a performance bond, the surety will pay, subject to the maximum bid bond penalty, the difference between the contractor's bid and the bid of the next lowest responsible bidder. The bid bond or deposit protects the owner from bidders without the resources necessary to complete the work and gives the owner a certain amount of indemnity against the cost of rebidding or finding another contractor who can complete the work. A surety required to pay on a defaulted bid has the right of recovery against the contractor's assets.

After being awarded a contract, a contractor may be required to post a performance bond, also issued by a surety. The performance bond provides protection against the contractor's failure to perform the contract in accordance with its terms. The surety's obligation under the bond terminates on satisfactory completion of the work required by the contract. However, if the contractor should fail to perform in accordance with the contract, the surety is obligated to the owner for losses but has recourse against the contractor's assets.

A payment, or labor-and-materials, bond is commonly provided by sureties as a companion to the performance bond. The protection provided by a payment bond is governed by state laws, which vary widely but generally cover the contractor's labor, subcontractors, and suppliers. The Miller Act of 1935 requires general contractors on federal government projects to post payment bonds to protect suppliers of labor, materials, and supplies to those projects.

In providing the various types of bonds required in the construction industry, the primary function of sureties is to prequalify the contractor. The surety examines the contracting entity to determine if it has the management, experience, equipment, and financ-

ing capability to get the job done. If, in the judgment of the surety, the contractor can perform the contract, the surety will provide the required bonds.

Surety underwriting is similar to, but different from, insurance. Insurance involves a two-party agreement in which a premium is paid to protect an insured party from the risk of certain types of losses. In contrast, a surety bond involves a three-party agreement in which the surety and the contractor join together to provide protection against losses to a third party. Surety underwriting is also similar to extending credit. For a fee, the surety provides a guarantee to third parties that the contractor will fulfill obligations of performance and payment. Just as a banker will not knowingly make a loan without satisfying himself regarding a borrower's ability to repay the loan in accordance with its terms, a surety will not knowingly issue a surety bond without similar knowledge of the contractor's ability to meet obligations in accordance with the terms of a contract.

Project Ownership and Rights of Lien

A contractor may be required to make a significant commitment of resources to a project under construction. His ability to recover his investment may be impaired by certain peculiar considerations. The project is ordinarily one of a kind and is built on the owner's site. The owner has title to the real estate as well as all improvements as the contractor provides them. The contractor acquires materials for specific projects and has no direct ownership claims to the work in progress. Subassemblies fabricated on the contractor's premises usually have little value to him because of the uniqueness of the project.

As a special remedy for these conditions, the laws of most states protect providers of labor and materials, such as contractors, from the failure of the owner to pay by granting a right of lien. Under a right of lien, contractors have a claim against the real property, although that right is not necessarily senior to other claims, such as the rights of mortgage holders. Since lien rights are lost if they are not perfected within a limited time period, contractors ordinarily have an established procedure for filing claims before the expiration of those rights. Federal government property ordinarily is not subject to lien under state law, but suppliers, other than general contractors, of labor and material for such property are normally protected by payment bonds that the general contractor is required to post under the Miller Act of 1935.

Contract Changes

Management control of change orders, claims, extras, and back charges is of critical significance in construction activity. Modifications of the original contract frequently result from change orders that may be initiated by either the customer or the contractor. The nature of the construction industry, particularly the complexity of some types of projects, is conducive to disputes between the parties that may give rise to claims or back charges. Claims may also arise from unapproved change orders. In addition, customer representatives at a job site sometimes authorize the contractor to do work beyond contract specifications, and this gives rise to claims for "extras." The ultimate profitability of a contract often depends on control, documentation, and collection of amounts arising from such items.

Financing Considerations

The methods of financing operations in the construction industry have developed in response to the nature of the industry and the business environment in which it functions. The cost and availability of financing are affected by the risks to which contractors are susceptible. The greatest risk factor in the industry stems from the method of pricing. A contractor, unlike a businessman in most other industries, must set his prices in the bidding or negotiating process before product costs are absolutely determined; and the prices, particularly for fixed-price contracts, are not necessarily subject to modifications solely because of changes in costs.

Accumulated equity is rarely used in the construction industry to finance construction projects in progress because the industry contains so many relatively small nonpublic entities.

A contractor's greatest financing need is working capital. Term loans to support working capital needs are rare because expansion can usually be supported by working capital loans on a contract-by-contract basis. Banks and other credit grantors typically require more tangible types of security for term loans than most contractors can furnish. However, contractors use chattel loans, which may be tailored to match payments with cash receipts, such as by a waiver of payments during off-season periods, to finance equipment purchases.

Although a traditional line of credit is seldom extended to a contractor, a working capital line of credit on specific contracts is

often available. Working capital loans are usually advanced on a contract as needed to pay for materials, labor, and subcontract costs. Such loans are a necessary means of financing for most contracts because of the lag between expenditures and the receipt of cash. The credit grantor may take an assignment of the contract and the related receivables; however, a bonding company, if one is involved, has rights to the receivables that take precedence over those of other creditors, including a secured lender. Credit grantors often require that the proceeds of contracts be assigned to them and may also require that the proceeds of the loan be paid directly to suppliers as invoices are submitted.

Contractors may qualify for government-sponsored programs that support or guarantee financing for small or minority-owned businesses. The programs generally guarantee lines of credit on a contract-by-contract basis. Those programs, under which the contract proceeds are usually assigned to the creditor, are ordinarily available only to contractors that would not qualify for working capital loans from banks without some form of government guarantee.

Some contractors finance bid deposits with temporary bank loans that are usually repaid by the return of the bid check. Since a bank-guaranteed check used as a bid deposit can be forfeited if a contractor who is awarded a contract cannot obtain the required bonding or withdraws from the contract, a contractor usually obtains a commitment for the required bonding before bidding on a project.

Billing practices in the industry have evolved from the need to generate cash flows in order to finance the progress of construction projects. In contrast to manufacturing companies, whose billing practices are fairly standard, with the customer billed on shipment of the goods, billing practices in the construction industry vary widely and are often not correlated with the performance of the work. Billing arrangements are usually specified in the contract and vary with the different types of contracts used in the industry. The amount and timing of billings under contract may be based, for example, on such measures as

- Completion of certain stages of the work.
- Costs incurred on cost-plus contracts.
- Architects' or engineers' estimates of completion.
- Specified time schedules.

- Quantity measures of unit price contracts, such as cubic yards excavated.

In any event, progress billings or customer advances on contracts provide a significant source of financing for most construction contractors. Most contracts, however, call for retention by the owner of a specified amount of each progress billing, often 10 percent, until the job reaches an agreed-on state of completion, with a provision for a reduction thereafter. The purpose of retentions is to ensure performance of the work in accordance with acceptable quality standards or to protect the owner against the cost of obtaining another contractor if a contractor fails to complete the work.

A contractor ordinarily will try to assign a higher relative bid price to job components that he expects to complete early in the job. The practice of unbalanced bidding, which is referred to as "front-end loading," accelerates the contractor's cash receipts on a contract and represents a significant financing strategy for many contractors.

Front-end loading and other types of unbalanced bidding are often viewed with concern by those not familiar with the industry, but they are common practices that contractors use to assist in financing of jobs. Money management is a vital part of construction management, and unbalanced bidding is one of the key tools. Negotiation of advantageous cash payment terms at the bidding stage and other procedures to accelerate cash collection are significant financing considerations in the industry. However, the contractor needs to be aware that, as a result of unbalanced bidding, cash inflows at the end of the contract may be less than cash requirements. Therefore, appropriate controls and cash budgeting are an essential part of financial management. An increasing number of credit grantors are requiring contractors to furnish cash projections on contracts before they will extend credit.

Joint Ventures

Contractors frequently participate in joint ventures with other parties on construction projects to share risks, to combine the financial and other resources and talents of the participants, or to obtain financing or bonding. In the construction industry, joint ventures often include arrangements for pooling equipment, bonding, and financing and for sharing skills such as engineering, design, and construction.

A joint venture is a business entity owned and operated by a small group of businesses (the "joint venturers") as a separate and specific business or project for the mutual benefit of members of the group. In the construction industry, ownership of joint ventures may take several forms. The most common are corporate joint ventures and partnerships.

A joint venture is operated by one or more of its owners, but all owners participate either directly or indirectly in its management. The rights and obligations of each joint venturer, the scope of the joint venture's operations, and the method of sharing profits or losses of the joint venture are typically set forth in the joint venture agreement. Profits and losses are shared in a variety of ways and may not be related to the method of sharing management or other responsibilities. Accomplishing objectives through joint ventures is often a significant business strategy for construction contractors, and management control of such activity can have a significant effect on the contractors' operations.

Reporting for Financial and Income Tax Purposes

Because of the large number of small enterprises in the construction industry, construction contractors' financial statements are used most frequently for credit and bonding purposes. Such a use is often accompanied by a request for supplemental information, including a job-by-job analysis of the recognized gross profit allocated between reporting periods. Recognition of revenues for these financial presentations is governed by accounting conventions described elsewhere in this guide and the statement of position (Appendix I).

On the other hand, business realities demonstrate that the gross profit is not certain, nor irrevocably earned, until the contract is actually completed and accepted. In addition, final collection, particularly of retentions, usually takes place some time after the earning process that is recognized in the financial statements.

Many contractors adopt income tax reporting practices that are sensitive to the uncertainties of the estimating process and that more nearly relate to the timing of cash receipts and disbursements. This usually means the adoption of methods that defer income recognition until contracts are completed or the use of the modified accrual basis, which reports retentions only when received, or the use of the cash basis.

Typical Industry Operations

Since the industry consists of diverse types of entities engaged in various types of work that may change over time, users of the guide need to understand not only the industry but also the operation of the individual entity with which they are concerned. For that reason, a description of the process of obtaining and initiating a project is useful to identify unusual conditions that require special consideration in preparing, auditing, or using the financial statements of a particular construction contractor.

Preparing Cost Estimates and Bids

The process leading to the preparation of estimates and bids on a project usually is initiated by the entity that engages a construction contractor for a project. When a customer, usually referred to as an owner, decides to construct a new facility, an architect or engineer may be engaged to prepare preliminary plans and cost estimates for the project. If preliminary procedures indicate the project is feasible, plans and specifications are prepared in sufficient detail for the preparation of cost estimates.

The owner may negotiate for a price with several general contracting firms or may advertise for bids. Bidders may be limited to those who can meet specified prequalification standards regarding financial capacity, experience, and availability of specialized equipment and who can furnish a bid, payment, or performance bond or all three types of bonds. The owner may decide to use one contractor as a prime contractor responsible for all phases of the work or to grant separate prime contracts for certain specialized portions of the work, such as electrical work, mechanical work, special equipment, and elevators.

Before tendering a bid, the contractor's estimating department prepares a cost estimate by examining the plans and specifications to determine the quantities of materials, the hours of various labor classifications, and the type and hours of use of the equipment necessary to perform the work. Quantity surveys, or takeoffs of the quantities of materials required for the job, prepared by the design firm or an independent agency, are often available for the contractor to use as a check on his own estimating department.

The equipment demands of a contract affect a contractor's bidding, projected need for funds, and financing strategy. Some types of construction require extensive use of costly equipment, and

contractors are faced with decisions to buy or lease the equipment. Such decisions are often complicated because equipment may be acquired and tailored for use on a specific job and because the contractor may not be able to use the equipment on other jobs.

Phases of the job (such as excavating, erecting steel, and roofing) not done directly by the contractor are offered to various trade or specialty subcontractors, who in turn prepare bids to the prime contractor for their portions of the work. Each phase of the work may be bid on by more than one subcontractor, who may submit bids to more than one prime contractor. In dealing with different prime contractors, a subcontractor may vary the amount of the bids according to his assessment of his past experience with each contractor in terms of payment policies, quality of supervision and job coordination, and negotiating pressures.

Once the estimated cost of the work is determined, the contractor determines the amount by which the estimated cost will be marked up. The markup may vary between elements of the work, such as labor, material, subcontractor costs, or equipment. In determining how much the bid will be marked up over cost, the contractor ordinarily evaluates several factors including, but not limited to, the following:

- The complexities of the job.
- The volatility of the labor and materials markets.
- The contractor's experience or lack of it in doing the kind of work involved.
- The reputation of the design agency for reliability and completeness of plans.
- The season and weather.
- The predicted working relationship with the owner.
- The probability of opportunities to negotiate profitable changes to the contract.
- The alternate construction methods or specifications included in the bid request.
- The competition and the market.
- The incentive or penalty provisions of the contract.
- The anticipated cash flow characteristics of the job.
- Other peculiar risk conditions, including warranty requirements.

After determining the total bid price, the contractor should estimate the timing of disbursements for the job and the cash resources available to determine the allocation of the contract price among the progress billing points called for in the contract.

Entering into the Contract

The owner evaluates the bids received and may choose to sign a contract with the low bidder or to negotiate further, depending on the terms of the invitation to bid, statutes governing the bidding process of either public or private bodies, and other possible considerations. Submitted bids may be a matter of public record, and the bids of other contractors can provide a valuable, independent check on the accuracy of the contractor's estimating department. At some stage, an agreement is reached between the owner and the contractor that enables the contractor to proceed with the work. The formal signing of a contract is usually not a specific point before which all effort is selling and after which all effort is construction. Negotiation is likely to continue during the entire cycle; the signed contract represents the basic understandings and undertakings of both parties, but many contract modifications, not necessarily in writing, may be made during the progress of the job. A given situation can be covered by different types of contracts, and the risks and concerns may be different for each contract type.

Planning and Initiating the Project

Before construction begins, the contractor usually moves equipment to the job site, erects a temporary field office, and installs temporary utilities. The purchasing department proceeds with the selection of material suppliers and subcontractors and converts their bids to written contracts or purchase orders. The authority and responsibility for the performance of the work on a project usually rest on one individual known as the project manager.

The management organization of construction contracting companies varies considerably, depending on the size of the contractor, the complexity of the projects performed, and other factors. In some companies, the person responsible for bidding a contract is also responsible for the performance of the job. This sometimes means that there is no separation of functions among selling, pricing, and production and that the company is a conglomerate of small profit centers sharing, perhaps, a pool of equipment and an

administrative staff. In other companies, a separate department is responsible for selecting jobs to estimate, preparing bids, and executing contracts. When the company obtains a contract for a project, a member of the production staff is assigned the responsibility as project manager. Before accepting responsibility for the profit on the project, the project manager often prepares a schedule and budget that may include a complete reestimate of the cost of the job. This procedure provides an additional element of control and allows the contractor to fix the responsibility for profit on a contract.

The cost reporting system for the job is usually established at about the time the work begins. The coding system may be standard throughout the company or redesigned for each individual job, but it should conform closely to the cost categories established in the original estimate or to the categories developed in the production plan, if one is prepared. A production plan or budget that is costed out in detail is helpful because it enables the contractor to compare costs by categories to the cost standards set before beginning the work.

On most construction projects, the major construction activity is carried out at the job site. The size and location of some projects make it necessary for a contractor to establish an administrative office at the job site and to conduct most control and accounting functions from that office.

Variations in Size and Methods of Operation

The preceding discussion of operations is typical of a medium-sized general contractor with a small number of significant contracts; it illustrates the importance of planning, bidding, and estimating. Construction activity, however, involves all types and sizes of contractors, and the management and operations of a contractor vary with the size and type of contractor. Many contractors have a mix of jobs that includes a few large jobs and many small jobs, including fixed-price and cost-plus contracts. Service-type contractors seldom are involved in bidding for contracts. Most of their small contracts originate as service calls, and many of their large contracts result from service calls and are negotiated rather than bid.

Project Management

The quality of management is a key determinant of the success or failure of a contractor. The management objective is to develop and maintain the ability to produce reasonable and competitive cost estimates on contracts and to complete the work required by the contracts within those cost estimates. Since success is determined by the results on contracts, many contractors project the effects that every transaction and event will have at the completion of the contract and use fluctuations of the final estimated profit as the stimulus for management action. Project management requires all the functions involved in planning, acquiring, controlling, and performing a project. All the following functions are involved:

- Resource planning
- Project start-up
- Estimating
- Scheduling
- Project administration
- Technical performance
- Procurement and material planning
- Labor planning and control
- Subcontractor management
- Support equipment and facilities
- Project accounting
- Project management reporting
- Operations analysis

Although some of these functions overlap, all are performed on every project undertaken by a contractor, even though the specific functions may not be identified. A large contractor may assign each function to a separate department, whereas a small contractor may assign two or three people responsibility for all the functions, or may engage parties outside the organization to perform some of the functions on a consulting basis.

Accounting

Chapter 2

Accounting for Performance of Construction-Type Contracts

The accounting section provides guidance on the application of generally accepted accounting principles to financial accounting and reporting in the construction industry. This chapter covers accounting for performance of construction-type contracts. Chapters 3 to 6 respectively cover joint ventures, reporting by affiliated entities, interperiod tax allocation, and financial statement presentation.

Published concurrently with this guide is a statement of position, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts,* that sets forth recommendations on accounting for construction-type and certain production-type contracts in all industries. The SOP (Appendix I) is an integral part of this guide. For convenience, the major recommendations on accounting for construction-type contracts are summarized in this section of the guide. However, users of the guide should refer to the statement of position for the details of those recommendations and for the underlying reasoning.

Contracts covered are construction-type contracts, as defined in paragraphs 11 to 17 of the statement of position. The classification of contracts, the definition of a contractor, and the concept of a profit center contained in those paragraphs also apply to the discussion in this guide.

Basic Accounting Policy for Contracts

As set forth in the SOP, the choice between the two generally accepted methods of accounting for contracts is the basic accounting policy decision for construction contractors. The circumstances

in which the percentage-of-completion and the completed-contract methods are deemed to be preferable are set forth in the SOP and are summarized in this section.

Percentage-of-Completion Method

The SOP recommends the percentage-of-completion method as preferable when estimates are reasonably dependable and the following conditions exist:

- Contracts executed by the parties normally include provisions that clearly specify the enforceable rights regarding goods or services to be provided and received by the parties, the consideration to be exchanged, and the manner and terms of settlement.
- The buyer can be expected to satisfy his obligations under the contract.
- The contractor can be expected to perform his contractual obligations.

The SOP states a presumption that contractors generally have the ability to produce estimates that are sufficiently dependable to justify the use of the percentage-of-completion method of accounting. It also states that persuasive evidence to the contrary is necessary to overcome that presumption. Paragraph 25 of the SOP recommends that the percentage-of-completion method applied to individual contracts or profit centers, as appropriate, on one or more of the following bases is preferable.

a. Normally, a contractor will be able to estimate total contract revenue and total contract cost in single amounts. Those amounts should normally be used as the basis for accounting for contracts under the percentage-of-completion method.

b. For some contracts, on which some level of profit is assured, a contractor may only be able to estimate total contract revenue and total contract cost in ranges of amounts. If, based on the information arising in estimating the ranges of amounts and all other pertinent data, the contractor can determine the amounts in the ranges that are most likely to occur, those amounts should be used in accounting for the contract under the percentage-of-completion method. If the most likely amounts cannot be determined, the lowest probable level of profit in the range should be used in accounting for the contract until the results can be estimated more precisely.

c. However, in some circumstances, estimating the final outcome may be impractical except to assure that no loss will be incurred.

In those circumstances, a contractor should use a zero estimate of profit; equal amounts of revenue and cost should be recognized until results can be estimated more precisely. A contractor should use this basis only if the bases in (*a*) or (*b*) are clearly not appropriate. A change from a zero estimate of profit to a more precise estimate should be accounted for as a change in an accounting estimate.

An entity using the percentage-of-completion method as its basic accounting policy should use the completed-contract method for a single contract or a group of contracts for which reasonably dependable estimates cannot be made or for which inherent hazards make estimates doubtful. Such a departure from the basic policy should be disclosed.

Completed-Contract Method

The SOP (paragraphs 30 to 33) recommends the use of the completed-contract method of accounting only in the following circumstances:

- If financial position and results of operations reported on that basis would not vary materially from those that would result from the percentage-of-completion method, for example, in circumstances in which a contractor has primarily short-term contracts.
- If estimates cannot meet the criteria for reasonable dependability on the basis of estimates in terms of single amounts, in terms of ranges of amounts, or in terms of a zero profit or if there are inherent hazards of the nature of those discussed in paragraphs 26 to 29 of the SOP.

Paragraph 52 of the SOP sets forth recommendations on procedures for determining when a contract is substantially completed under the completed-contract method.

Determining the Profit Center

In accordance with the SOP, each individual contract is presumed to be the profit center for revenue recognition, cost accumulation, and income measurement unless the contract meets the criteria in the SOP (paragraphs 35 to 42) for combining or segmenting.

Measuring the Extent of Progress Toward Completion

As set forth in the SOP (paragraphs 43 to 51), the various methods used in practice to determine extent of progress toward completion, such as the cost-to-cost method, efforts-expended method, and units-of-work-performed method, conform to paragraph 4 of Accounting Research Bulletin no. 45. The objective of all the methods used in practice is to measure the extent of progress in terms of costs, units produced, contract milestones, or value added; however, a particular method may or may not achieve that result, depending on the circumstances of use and the manner in which it is applied.

The various measures are identified and classified in the SOP as input and output measures. Input measures are in terms of efforts devoted to a contract; output measures are in terms of results. Both types of measures have drawbacks in some circumstances, and their use requires the exercise of judgment and careful application to circumstances. The results obtained should be evaluated periodically by physical observation by qualified personnel.

Income Determination—Revenue

The factors and the recommended procedures (paragraphs 53 to 67 of the SOP) for estimating, measuring, and accounting for contract revenue include (*a*) the nature of the contract and the basic contract price or pricing formula, (*b*) contract options and additions, (*c*) change orders, (*d*) claims, and (*e*) contract provisions for penalty and incentive payments. To estimate and measure total contract revenue for the purpose of determining the amount of income earned, a contractor should follow the recommendations in the SOP in evaluating all those factors periodically throughout the life of the contract.

Income Determination—Cost Elements

Maintaining a reasonable degree of accuracy in identifying, estimating, and accumulating contract costs is essential in determining the amount of income earned. Although the systems and procedures used to account for cost are diverse, the objective of each system or each set of procedures should be to accumulate costs consistently by contract.

Accounting for Contract Costs

The SOP (paragraph 72) provides the following:

a. All direct costs, such as material, labor, and subcontracting costs, should be included in contract costs.

b. Indirect costs allocable to contracts include the costs of indirect labor, contract supervision, tools and equipment, supplies, quality control and inspection, insurance, repairs and maintenance, depreciation and amortization, and, in some circumstances, support costs, such as central preparation and processing of payrolls. For government contractors, other types of costs that are allowable or allocable under pertinent government contract regulations may be allocated to contracts as indirect costs if otherwise allowable under GAAP. Methods of allocating indirect costs should be systematic and rational. They include, for example, allocations based on direct labor costs, direct labor hours, or a combination of direct labor and material costs. The appropriateness of allocations of indirect costs and of the methods of allocation depend on the circumstances and involve judgment.

c. General and administrative costs ordinarily should be charged to expense as incurred but may be accounted for as contract costs under the completed-contract method of accounting or, in some circumstances, as indirect contract costs by government contractors.

d. Selling costs should be excluded from contract costs and charged to expense as incurred unless they meet the criteria for precontract costs in paragraph 75.

e. Costs under cost-type contracts should be charged to contract costs in conformity with generally accepted accounting principles in the same manner as costs under other types of contracts because unrealistic profit margins may result in circumstances in which reimbursable cost accumulations omit substantial contract costs (with a resulting larger fee) or include substantial unallocable general and administrative costs (with a resulting smaller fee).

f. In computing estimated gross profit or providing for losses on contracts, estimates of cost to complete should reflect all of the types of costs included in contract costs.

g. Inventoriable costs should not be carried at amounts that when added to the estimated cost to complete are greater than the estimated realizable value of the related contracts.

Precontract Costs

The following recommendations from paragraph 75 of the SOP apply to precontract costs:

a. Costs that are incurred for a specific anticipated contract and that will result in no future benefits unless the contract is obtained should not be included in contract costs or inventory before the receipt of the contract. However, such costs may be otherwise deferred, subject to evaluation of their probable recoverability, but only if the costs can be directly associated with a specific anticipated contract and if their recoverability from the contract is probable.

b. Costs incurred for assets, such as costs for the purchase of materials, production equipment, or supplies, that are expected to be used in connection with anticipated contracts may be deferred outside the contract cost or inventory classification if their recovery from future contract revenue or from other dispositions of the assets is probable.

c. Costs incurred to acquire or produce goods in excess of the amounts required for an existing contract in anticipation of future orders for the same items may be treated as inventory if their recovery is probable.

d. Learning or start-up costs incurred in connection with existing contracts and in anticipation of follow-on or future contracts for the same goods or services should be charged to existing contracts.

e. Costs appropriately deferred in anticipation of a contract should be included in contract costs on the receipt of the anticipated contract.

f. Costs related to anticipated contracts that are charged to expenses as incurred because their recovery is not considered probable should not be reinstated by a credit to income on the subsequent receipt of the contract.

Cost Adjustments for Back Charges

Back charges are billings for work performed or costs incurred by one party that should have been performed or incurred by another. In practice, such charges are sometimes not recorded as receivables or payables.

The SOP (paragraph 77) provides the following recommendations on accounting for such charges:

- Back charges to others should be recorded as receivables and, to the extent considered collectible, should be applied to reduce contract costs. However, if the billed party disputes the propriety or amount of the charge, the back charge is in effect a claim, and the criteria for recording claims apply.

- Back charges from others should be recorded as payables and as additional contract costs to the extent that it is probable that the amounts will be paid.

Estimated Cost to Complete

Estimated cost to complete should be determined in accordance with the following recommendations from the SOP (paragraph 78):

a. Systematic and consistent procedures that are correlated with the cost accounting system should be used to provide a basis for periodically comparing actual and estimated costs.

b. In estimating total contract costs, the quantities and prices of all significant elements of cost should be identified.

c. The estimating procedures should provide that estimated cost to complete includes the same elements of cost that are included in actual accumulated costs; also, those elements should reflect expected price increases.

d. The effects of future wage and price escalations should be taken into account in cost estimates, especially when the contract performance will be carried out over a significant period of time. Escalation provisions should not be blanket overall provisions but should cover labor, materials, and indirect costs based on percentages or amounts that take into consideration experience and other pertinent data.

e. Estimates of cost to complete should be reviewed periodically and revised as appropriate to reflect new information.

Computation of Earned Income

The SOP (paragraphs 80 and 81) and Appendix 3 set forth and illustrate procedures for determining earned income for a period under the percentage-of-completion method.

Revised Estimates

Revisions in cost and profit estimates or in estimates of the percentage of completion are changes in accounting estimates and should be accounted for and disclosed in accordance with APB Opinion 20, *Accounting Changes*, and the recommended accounting in paragraphs 82 to 84 of the SOP.

Provisions for Anticipated Losses on Contracts

The following summarizes the recommended accounting for

provisions for anticipated losses on contracts contained in paragraphs 85 to 89 of the SOP.

- A provision for losses on a contract should be made as soon as the losses become evident, regardless of the method of accounting for the contract.
- The provision should be computed on the basis of the total estimated cost to complete the contract and should reflect all elements of costs included in contract costs under paragraph 72 of the SOP.
- The provision should be shown separately as a liability on the balance sheet or as a deduction from any related accumulated costs.
- The loss should be included in the income statement as an element of contract costs rather than as a reduction of contract revenue.

Selecting a Measure of Extent of Progress

A good measure of extent of progress toward completion should give weight to all elements of a contractor's work and should consider the broad phases of a contractor's operation, such as

- Designing the project (preparing blueprints to meet the owner's specifications).
- Obtaining the necessary labor, materials, supplies, and equipment and mobilizing them at the construction site. (See paragraph 50 of the SOP for a discussion of uninstalled materials under the cost-to-cost method of measuring the extent of progress.)
- Managing the resources to complete the project.
- Demobilizing the resources from the construction site.

Costs of Equipment and Small Tools

In establishing operating unit costs for construction equipment, contractors may apply rates arrived at under the so-called use rate theory. In applying this theory, the following factors should be considered: (1) the cost of the equipment, less estimates of its salvage value or rental if it is leased, (2) the probable life of the equipment, (3) the average idle time during the life or period of

hire of the equipment, and (4) the costs of operating the equipment, such as repairs, storage, insurance, and taxes. A rate may be arrived at, which, based on the reported use of the equipment, will serve as a basis for charging the contracts on which the equipment is used. The cost of a contractor's equipment should be allocated to the particular contract on which it is used on a reasonable basis, such as time, hours of use, or mileage.

In determining a suitable indirect cost allocation method for equipment, questions arise relating to accounting for equipment charges when a contractor's equipment is idle during a winter season, or to the propriety of allocating idle equipment costs to jobs. Practice supports the allocation of idle equipment costs to contracts by use of rates geared to cover all costs. That procedure results in rates that lessors of the same type of equipment charge users in the same location, except for the profit element.

Small tools should be charged to a contract as they are consumed in performance of the contract. Operating and maintenance costs of miscellaneous small tools and equipment are usually charged to overhead accounts rather than specific contracts. However, a contractor may charge the costs directly to specific contracts if they relate to specific contracts. As a practical matter, small tools can frequently be charged to contracts when purchased for the contracts or when issued from a central pool. Contract costs should be credited with estimated salvage value of small tools remaining at completion of the contracts.

If small tools are significant, they can be accounted for in inventory accounts or in fixed assets accounts. Removals from inventory can be accounted for by specific contract, or inventory reductions can be charged to overhead and spread over jobs on an equitable basis. Depreciation of small tools carried in fixed assets can likewise be charged to overhead or to specific contracts.

Chapter 3

Accounting for and Reporting Investments in Construction Joint Ventures

As noted in chapter 1, contractors frequently participate in construction joint ventures with other parties to share risks, to combine financial and other resources, or to obtain financing or bonding. Entities described as construction joint ventures vary in their legal forms. They include corporations, general and limited partnerships, and undivided interests. The entities, which are usually project oriented, are often viewed as joint ventures even though one of the investors may have a majority voting interest or may otherwise have effective control of the entity. Since this chapter presents guidance on accounting for investments in entities described as construction joint ventures, questions relating to the existence of control are also addressed.[1]

Accounting for Transactions With the Venture

Capital Contributions

Cash capital contributions to a venture by a venturer should be recorded by the venturer as an investment in the amount of the

1. The recommendations in this chapter are intended to conform existing accounting practice for investments in all types of construction industry joint ventures to the requirements in APB Opinion 18, *The Equity Method of Accounting for Investments in Common Stock,* relating to corporate joint ventures. The accounting standards division has prepared, and presented to the Financial Accounting Standards Board for its consideration, an issues paper on joint venture accounting. The paper explores issues relating to accounting for investments in joint ventures and urges the board to reexamine the requirements of APB Opinion 18 relating to corporate joint ventures and to consider a comprehensive pronouncement on accounting issues related to joint ventures.

cash contributed. As a general rule, the contribution of other assets should be recorded as an investment equal to the contributed asset's net book value on the venturer's books. That basis should be used regardless of the nature of the interest in the venture obtained from the transaction. Such a contribution is a nonmonetary transaction that does not represent the culmination of an earning process as discussed in APB Opinion 29, *Accounting for Nonmonetary Transactions.*

However, a noncash contribution may be accompanied by a cash withdrawal by the contributing venturer. The receipt of cash may represent monetary consideration on which the venturer should recognize profit, in accordance with APB Opinion 29, to the extent of the other venturers' proportionate interests.

The following illustrates a transaction in which the contributing venturer should recognize profit:

> A and B are to share equally in a new joint venture. A contributes $100,000 in cash and B contributes equipment with carrying value to him of $140,000. To equalize the contributions, A and B agree that B will withdraw $100,000 from the venture. The conditions required for proportionate profit recognition by B are present.

Results

1. The transaction indicates that the equipment has a fair value of $200,000.
2. B now effectively owns a 50 percent interest in the equipment.
3. B therefore has effectively sold a 50 percent interest in the equipment to A for $100,000 and should recognize a gain before income taxes of $30,000, that is, $100,000 − (½ × $140,000).
4. B should recognize an additional $30,000 as a gain as the venture depreciates the equipment. The venture would initially record the equipment on its books at its indicated fair value of $200,000.

A venturer may contribute assets to a venture and obtain an interest in the venture smaller than the carrying amount of contributed assets, based on the relationship of the carrying amount of the asset to the cash contributed by the other venturers. In those circumstances, the transaction might provide evidence that the cost or carrying amount of the contributed assets is greater than

their fair value, and that a loss should be recognized. Under the general principle that all losses should be recognized when they become evident, an indicated loss should be recognized by the venturer, with a corresponding reduction in the carrying amount of its investment in the venture.

The following is an illustration of a transaction in which a venturer should recognize a loss:

> A and B are to share equally in a new joint venture. A contributes $100,000 in cash and B contributes equipment with a carrying value to him of $140,000.

Results

1. The transaction indicates that the equipment has a fair value of $100,000 (the amount of A's contribution).
2. B should recognize a loss of $40,000 and record its investment in the venture at $100,000.

A venturer may obtain an interest in a venture by contributing service or "know-how." If the services are to be provided in the future, the cost should not be assigned to the investment account until the services are performed. Recognition of the venturer's share of the profits on withdrawals received before the performance of the services should be deferred until the services are performed and the earning process is complete.

Sales to a Venture

Sales of materials, supplies, or services to a venture by a venturer that controls the venture, through majority voting interest or otherwise, generally should not be viewed as arm's length transactions. The venturer should not recognize as income any of the intercompany profit or loss from such transactions until it has been realized through transactions with outside third parties.

An AICPA accounting interpretation of APB Opinion 18 states the following:

> When an investor controls an investee through majority voting interest and enters into a transaction which is not on an "arm's length" basis, none of the intercompany profit or loss from the transaction should be recognized in income by the investor until it has been realized through transactions with third parties. The same treatment also applies for an investee established with the cooperation of an investor (including an investee established for the financing and operation or leasing of property sold to the investee by the

investor) when control is exercised through guarantees of indebtedness, extension of credit and other special arrangements by the investor for the benefit of the investee, or because of ownership by the investor of warrants, convertible securities, etc. issued by the investee.

However, a transaction may be deemed to be on an "arm's length" basis, and a controlling venturer may recognize profit to the extent of other interests in the venture if the following conditions are met:

1. The transaction was entered into at a price determinable on an arm's length basis; that is, fair value can be measured by comparable sales at normal selling prices to independent third parties or by competitive bids.
2. There are no substantial uncertainties regarding the venturer's ability to perform, such as those that may be present if the venturer lacks experience in the business of the venture, or regarding the total cost of the services to be rendered.
3. The venture is creditworthy and has independent financial substance.

A venturer that does not control the venture should recognize intercompany profit to the extent of other interests in the venture.

For nonmonetary transactions, profit should be recognized in accordance with APB Opinion 29.

Presentation Practices in Reporting Investments in Ventures

At least five different methods of presenting a venturer's interest in a venture are followed in present practice:

1. *Consolidation.* The venture is fully consolidated, with the other venturers' interests shown as minority interests.
2. *Partial or proportionate consolidation.* The venturer records its proportionate interest in the venture's assets, liabilities, revenues, and expenses on a line-by-line basis and combines the amounts directly with its own assets, liabilities, revenues, and expenses without distinguishing between the amounts related to the venture and those held directly by the venturer.
3. *Expanded equity method.* The venturer presents its proportionate share of the venture's assets and liabilities in capsule form, segregated between current and noncurrent. The ele-

ments of the investment are presented separately by including the venturer's equity in the venture's corresponding items under current assets, current liabilities, noncurrent assets, noncurrent liabilities, revenues, and expenses, using a caption such as "investor's share of net current assets of joint ventures."

4. *Equity method.* The equity method is the traditional one-line method prescribed by APB Opinion 18 for investments in corporate joint ventures and for investments in common stock that represent less than a majority interest but that evidence an ability to exercise significant influence over the investee.
5. *Cost.* The investment is recorded at cost, and income is recognized as distributions are received from earnings accumulated by the venture since the date of acquisition by the venturer.

The extent of the use of those methods varies; however, they have all been used in, or have been considered acceptable for use in, accounting for investments in joint ventures in the construction industry. Combinations of those methods have also been used in the construction industry. For example, a common combination is to use the one-line equity method in the balance sheet and the proportionate consolidation method in the income statement.

Recommended Financial Statement Presentation Practices

Corporate Ventures

APB Opinion 18 requires investments in corporate joint ventures to be accounted for by the equity method and includes guidance for applying that method in the financial statements of the investor.

Paragraph 3 of APB Opinion 18 states, "An entity which is a subsidiary of one of the 'joint venturers' is not a corporate joint venture." A subsidiary, according to that opinion, is

> . . . a corporation which is controlled, directly or indirectly, by another corporation. The usual condition for control is ownership of a majority (over 50%) of the outstanding voting stock. The power to control may also exist with a lesser percentage of ownership, for example, by contract, lease, agreement with other stockholders or by court decree.

Accordingly, a controlling venturer should account for an own-

ership interest in excess of 50 percent in a corporate venture under principles of accounting applicable to investments in subsidiaries, in accordance with Accounting Research Bulletin no. 51. Exceptions to consolidation should be based on the examples in ARB no. 51. Minority shareholders in such a corporation should account for their investment using the principles applicable to investments in common stock in APB Opinion 18 or in FASB Statement no. 12, as appropriate.

General Partnerships

In December 1971 the staff of the American Institute of Certified Public Accountants issued an accounting interpretation of APB Opinion 18 that concludes that many of the provisions of APB Opinion 18 are usually appropriate in accounting for investments in certain unincorporated entities. The principal difference, aside from income tax considerations, between corporate joint ventures and general partnerships is that a condition that would usually indicate control of a general partnership is ownership of a majority (over 50 percent) of the financial interests in profits or losses. The power to control a general partnership may also exist with a lesser percentage of ownership, for example, by contract, by agreement with other partners, or by court decree. On the other hand, majority ownership may not constitute control if major decisions such as the acquisition, sale, or refinancing of principal partnership assets must be approved by one or more of the other partners. A controlling investor in a general partnership should account for the investment under the principles of accounting applicable to investments in subsidiaries. Accordingly, intercompany profits and losses on assets remaining within the group should be eliminated. A noncontrolling investor in a general partnership should be guided by the provisions of APB Opinion 18.

Limited Partnerships

The accounting recommendations for investments in general partnerships are generally appropriate for accounting by limited partners for their investments in limited partnerships. However, a limited partner's interest may be so minor that the investor may have virtually no influence over partnership operating and financial policies. Such a limited partner is, in substance, in the same position relative to the investment as an investor that owns a minor common stock interest in a corporation, and, accordingly, accounting for the investment using the cost method may be appropriate.

If the substance of the partnership arrangement is such that the general partners are not in control of the partnership's major operating and financial policies, a limited partner may be in control. An example could be a limited partner holding over 50 percent of the total partnership interest.

A controlling limited partner should be guided in accounting for its investment by the principles applicable to investments in subsidiaries. Noncontrolling limited partners should be guided by the provisions of APB Opinion 18, unless the cost method is appropriate, as discussed above.

Undivided Interests

The accounting interpretation of APB Opinion 18 issued by the staff of the American Institute of Certified Public Accountants in December 1971 concluded that most of the provisions of paragraph 19 of APB Opinion 18 generally would be appropriate in accounting for investments "in partnerships and unincorporated joint ventures (also called undivided interests in ventures)." However, for unincorporated joint ventures (undivided interests in ventures), the interpretation states the following:

> [B]ecause the investor-venturer owns an undivided interest in each asset and is proportionately [i.e., severally] liable for its share of each liability, the provisions set forth in paragraph 19(c) of the Opinion may not apply in some industries. For example, where it is the established industry practice (such as in some oil and gas venture accounting), the investor-venturer may account in its financial statements for its *pro rata* share of the assets, liabilities, revenues, and expenses of the venture.

For investments in joint ventures in the construction industry that represent bona fide undivided interests, the investor-venturer may account in its financial statements for its pro rata share of the assets, liabilities, revenues, and expenses of the venture.

Adjustments to Net Income to Determine Working Capital

APB Opinion 19, *Reporting Changes in Financial Position*, provides that the statement of changes in financial position should disclose (*a*) working capital or cash provided from operations for the period and (*b*) all significant changes in financial position. To the

extent that the venturer's share of joint venture earnings reported under the equity method is not distributed in the period earned and the investment is not classified as current in a classified balance sheet, the earnings are not a source of working capital or cash, except to the extent that the distribution should be accrued as a current receivable under generally accepted accounting principles, and an adjustment to net income is required in determining working capital or cash provided by operations.

Determining Venturers' Percentage Ownership

Many joint venture agreements designate different allocations among the venturers of (*a*) the profits and losses, (*b*) the specified costs and expenses or revenues, (*c*) the distributions of cash from operations, and (*d*) the distributions of cash proceeds from liquidation. Such agreements may also provide for changes in the allocations at specified future dates or on the occurrence of specified future events. For the purpose of determining the amount of income or loss to be recognized by the venturer, the percentage of ownership interest should be based on the percentage by which costs and profits will ultimately be shared by the venturers. An exception to this general rule may be appropriate if changes in the percentages are scheduled or expected to occur so far in the future that they become meaningless for current reporting purposes. In those circumstances, the percentage interest specified in the joint venture agreement should be used with appropriate disclosures.

Conforming the Accounting Principles of the Venture

The accounts of a venture may reflect accounting practices, such as those used to prepare tax basis data for investors, that vary from generally accepted accounting principles. If the financial statements of the investor are to be prepared in conformity with generally accepted accounting principles, such variances that are material should be eliminated in applying the equity method.

Losses in Excess of a Venturer's Investment, Loans, and Advances

A venturer should record its equity in joint venture losses in excess of its investment, loans, and advances if the venturer is

liable for the obligations of the venture or is otherwise committed to provide additional financial support to the joint venture. Such circumstances may be evidenced by

1. Legal obligation as a guarantor or general partner.
2. Commitment based on such considerations as business reputation, intercompany relationships, and credit standing. Such a commitment might be evidenced by
   a. Previous support by the venturer indicating that it would make good joint venture obligations.
   b. Public statements by the venturer of its intention to provide support.

Disclosures in a Venturer's Financial Statements

In addition to the presentation of the basic financial statements and required disclosures in those statements, additional disclosures relating to significant joint ventures that should be considered by a venturer include

1. The name of each joint venture, the percentage of ownership, and any important provisions of the joint venture agreement.
2. If the joint venture's financial statements are not fully consolidated with those of the venturer, separate or combined financial statements of the ventures in summary form, including disclosure of accounting principles of the ventures that differ significantly from those of the venturer.
3. Intercompany transactions during the period and the basis of intercompany billings and charges.
4. Liabilities and contingent liabilities arising from the joint venture arrangement.

Chapter 4

Financial Reporting by Affiliated Entities

Nonaccounting considerations, including taxation and exposure to legal liability, dictate the organizational structure and operating arrangements of many entities in the construction industry. As a result, many construction operations, when viewed as economic units, include several affiliated entities that are "related parties" as that term is defined in Statement on Auditing Standards no. 6 and in related auditing interpretations. In defining "related parties," paragraph 2 of SAS no. 6 states

> . . . the term *related parties* means the reporting entity; its affiliates; principal owners, management, and members of their immediate families; entities for which investments are accounted for by the equity method; and any other party with which the reporting entity may deal when one party has the ability to significantly influence the management or operating policies of the other, to the extent that one of the transacting parties might be prevented from fully pursuing its own separate interests. Related parties also exist when another entity has the ability to significantly influence the management or operating policies of the transacting parties or when another entity has an ownership interest in one of the transacting parties and the ability to significantly influence the other, to the extent that one or more of the transacting parties might be prevented from fully pursuing its own separate interests.

The division believes that consolidated or combined financial statements for the members of a group of affiliated entities that constitute an economic unit generally present more meaningful information than the separate statements of the members of the economic unit. The separate statements of the members of the

group usually cannot stand on their own because they may not reflect appropriate contract revenue, costs, or overhead allocations and because transactions may be unduly influenced by controlling related parties. Under generally accepted accounting principles, there is a presumption that entities with parent-subsidiary relationships should present consolidated financial statements. ARB no. 51 specifies the basis of presentation. Other recommended financial statement presentations for affiliated companies are presented in this chapter.

Combined Financial Statements

For the purpose of presenting financial condition, results of operations, and changes in financial position of a group of affiliated companies that generally conduct their construction operations as, in effect, a single economic unit, combined financial statements are preferable unless consolidated financial statements are appropriate under ARB 51. In determining the need for combined financial statements, a group of affiliated companies should be viewed as a single economic unit if the members of the group are under common control and if their operations are closely interrelated and economically interdependent.

In the presentation of combined statements for members of an economic unit, general practices followed in the preparation of consolidated statements should be used in such matters as transactions between members of the economic unit, minority interests, foreign operations, income taxes, and different fiscal periods. The disclosures required in consolidated statements should be made, as well as disclosures relating specifically to combined statements. These include

- A statement to the effect that combined statements are not those of a separate legal entity.
- The names and year-ends of the major entities included in the combined group.
- The nature of the relationship between the companies.

The capital of each entity should be disclosed on the face of the financial statements or in a note, either in detail by entity if the number of entities is small or, if detailed disclosure is not practicable, in condensed form with an explanation as to how the information was accumulated.

Presentation of Separate Statements of Members of an Affiliated Group

Although the division recommends consolidated or combined statements of affiliated companies as the primary financial statements of an economic unit, the needs of specific users may sometimes necessitate the presentation of separate statements for individual members of an affiliated group. The issuer of separate financial statements for a member of an affiliated group should make appropriate disclosures on related parties. Related party transactions include transactions between a parent company and its subsidiaries, transactions among subsidiaries of a common parent, and transactions in which the reporting entity participates with other affiliated businesses, with management, or with principal stockholders (or other ownership interests).

In accordance with SAS no. 6, financial statements of a reporting entity that has participated in material related party transactions should disclose, individually or in the aggregate, the following:

- The nature of the relationships.[1]
- A description of the transactions (summarized for numerous transactions) for the period reported on, including amounts, if any, and such other information deemed necessary for understanding the effects of the transactions on the financial statements. This includes transactions between related parties even though the transactions may not have been recorded in the accounting records. For example, if an entity provides services to a related party without charge, appropriate disclosure should be made of the nature and amount of the service rendered; also, if two or more entities in the same line of business are commonly controlled by a party with the ability to increase or decrease the volume of business done by each, the nature of common control should be disclosed.
- The dollar volume of transactions and the effects of any change in the method of establishing terms from that used in the preceding period.
- Amounts due from or to related parties and, if not otherwise apparent, the terms and manner of settlement.

1. The nature of common control should be disclosed even when no transactions between the parties have occurred.

The division also recommends presentation in a note to the financial statements of the condensed consolidated or combined balance sheet and statement of income of the members of the affiliated group that constitute the economic unit.

Chapter 5

Differences Between Financial Accounting and Income Tax Accounting

Causes and Sources of Differences

Differing and often conflicting objectives and needs in determining income for current income tax payments and for financial reporting have led to the practice, common in the construction industry, of measuring income for income tax purposes by methods different from those used for financial reporting purposes.

As previously discussed, income determination in the construction contracting industry involves many varied and changing conditions over which a contractor may have little control. Under most contracts, cash payments, which frequently represent amounts in excess of contract profit, are withheld by the owner until final acceptance of the project and are paid to the contractor in a period or periods different from those in which the income is earned. Those conditions have led contractors to adopt acceptable income tax reporting policies that defer income recognition for tax purposes until contracts are completed or that report income from contracts on a cash basis or on the basis of billings.

Despite the acceptability and appropriateness of such methods for determining current tax payments, the contractor, when measuring current financial status for financial reporting purposes, must take into account all known factors regarding contract performance. The financial reports serve as the basis for management planning and control; and the reports provide bonding companies and credit grantors with information on the current contract and financial status, which is generally required by them as part of their bonding or lending activities.

The differences between the periodic amounts of contract income reported during the term of a contract for financial reporting and income tax purposes result in timing differences. APB Opinion 11 requires comprehensive interperiod tax allocation in financial reporting. Many of the various types of timing differences are the same for contractors as they are for other business enterprises. In addition, the following operating and financial reporting characteristics in the construction industry affect the nature and types of timing differences in the industry:

- For reasons previously discussed, it is often not desirable for contractors to use, for income tax purposes, the method of accounting for contracts that is appropriate for financial reporting purposes.
- Joint performance of contracts under formal venture agreements is often necessary, and this creates a separate tax accounting entity that must adopt its own contract accounting methods and tax accounting policies. Also, taxable periods and accounting methods of such an entity may not coincide with those of the venturers.
- When current estimates of contract performance indicate an ultimate loss, accounting principles require a current loss provision, which is not deductible currently for income tax purposes.

Accounting Methods Acceptable for Income Tax Purposes

In addition to the percentage-of-completion and completed-contract methods, contractors ordinarily have available to them the cash method and "accrual" methods (billings and costs) of accounting for determining taxable income. Contractors, like other taxpayers, are not ordinarily required to use the same method for both financial reporting and tax purposes, but they should be familiar with both the financial reporting and tax effects of a choice of a method of accounting for income tax purposes. When effective tax planning dictates the use of a different method for tax purposes, ordinarily there should be no reluctance to use that method.

Cash Method

The cash method has a potential tax advantage for a contractor because careful year-end scheduling of controllable receipts and

disbursements can be used in tax planning. Under the cash method of computing taxable income, all items that represent gross income—whether in the form of cash, property, or services—are included in income for the taxable year in which they are received or constructively received. Expenditures are generally deducted as expenses in the taxable year in which they occur. Income is constructively received in the taxable year in which it is credited to the taxpayer's account or set apart for him so that he may draw on it at any time. However, income is not constructively received if the taxpayer's control of its receipt is subject to substantial limitations or restrictions. A contractor using the cash method who intentionally defers or postpones billings to shift income from one period to another may be deemed to have constructively received as income amounts of billings deferred or postponed. The provisions of the contract and the actual performance on the project are the factors that determine when income is taxable. Although taxable income is affected by normal lags between billings and payments, a taxpayer reporting on a cash basis cannot arbitrarily determine the period in which income on a contract will be reported by arbitrarily selecting a billing date.

Under the cash method, contract costs are deductible in the year in which they are paid, even though the contract income has not been earned or received. For tax purposes, contract costs are deferred charges, not inventories. Although the cash basis method of reporting income cannot be applied to inventories, carrying minor amounts of inventories does not preclude a taxpayer from using that method. However, the cash method cannot be applied to inventories of large quantities of materials purchased and stored for future use without assignment for a specific contract. A taxpayer in the home building business who builds for resale must accumulate contract costs and deduct them in the year in which the sale of the property is reported, even though he may claim to be on the cash basis. Under those circumstances, contract costs must be treated as work in progress. Also, an expenditure may be deductible only in part for the taxable year in which it is made if the expenditure is for an asset (for example, a depreciable asset or a three-year insurance policy) having a useful life that extends substantially beyond the close of the taxable year.

"Accrual" Method

A company using an accrual method for income tax purposes reports as revenue amounts billed on contracts and as cost of

earned revenue contract costs incurred to the date of the most recently rendered contract billing. Other expenditures are deductible as incurred. The accrual method may accelerate tax liabilities if gross margins on early billings are greater than gross margins on billings in the later stages of the contract. A contractor may elect to exclude retentions from income until they are received; otherwise, they are recognized when billed, which may create a cash flow disadvantage since retentions normally are not collected until after contract completion.

Chapter 6

Financial Statement Presentation

Balance Sheet Classification

The predominant practice in the construction industry is to present balance sheets with assets and liabilities classified as current and noncurrent, in accordance with chapter 3A of ARB 43, on the basis of one year or the operating cycle (if it exceeds one year).

Construction contractors may use either a classified or unclassified balance sheet.

- A classified balance sheet is preferable for entities whose operating cycle is one year or less. An entity whose operating cycle for most of its contracts is one year or less but that periodically obtains some contracts that are significantly longer than normal may use a classified balance sheet with a separate classification and disclosure for items that relate to contracts that deviate from its normal operating cycle. For example, if a company with a normal cycle of one year obtains a substantial contract that greatly exceeds one year, it may still use a classified balance sheet if it excludes from current assets and liabilities the assets and liabilities related to the contract that are expected to be realized or liquidated after one year and discloses in the financial statements information on the realization and maturity of those items. The one-year basis of classification, where appropriate, presents information in a form preferred by many sureties and credit grantors as one of the many tools that they use to make analyses of a contractor's operations and financial statements.
- An unclassified balance sheet is preferable for entities whose operating cycle exceeds one year. An entity whose operating cycle exceeds one year may also use a classified balance sheet with assets and liabilities classified as current on the basis of the

operating cycle if in management's opinion an unclassified balance sheet would not result in a meaningful presentation.

A company should disclose liquidity characteristics of specific assets and liabilities if its operating cycle exceeds one year or if it uses an unclassified balance sheet. Information about specific assets and liabilities, including but not limited to accounts and retentions receivable and payable, should be disclosed. The company should disclose the amounts of retentions received or to be paid after one year and, if practicable, the year in which the amounts are expected to be received or paid.

Guidelines for Classified Balance Sheets

A classified balance sheet should be prepared in accordance with chapter 3A of Accounting Research Bulletin no. 43 and the guidelines discussed in the following paragraphs.

General Guidance

For most construction contractors, the operating cycle is difficult to measure with precision because it is determined by contracts of varying durations. Chapter 3 of Accounting Research Bulletin no. 43 (paragraph 5) defines the operating cycle as

> The average time intervening between the acquisition of materials or services entering [the production] process and the final cash realization. . . .

The operating cycle of a contractor is determined by a composite of many individual contracts in various stages of completion. Thus, the operating cycle of a contractor is measured by the duration of contracts, i.e., the average time intervening between the inception of contracts and the substantial completion of contracts.

Chapter 3 of ARB no. 43 (paragraph 4) defines current assets in terms of the operating cycle:

> For accounting purposes, the term *current assets* is used to designate cash and other resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the operating cycle of the business. Thus the term comprehends in general such resources as (*a*) cash available for current operations and items which are the equivalent of cash; (*b*) inventories of merchandise, raw materials, goods in process, finished goods, operating supplies, and ordinary maintenance material and

parts; (*c*) trade accounts, notes, and acceptances receivable; (*d*) receivables from officers, employees, affiliates, and others, if collectible in the ordinary course of business within a year; (*e*) installment or deferred accounts and notes receivable if they conform generally to normal trade practices; (*f*) marketable securities representing the investment of cash available for current operations; and (*g*) prepaid expenses such as insurance, interest, rents, taxes, unused royalties, current paid advertising services not yet received, and operating supplies.

Chapter 3 of the bulletin (paragraph 7) similarly defines current liabilities in relation to the operating cycle:

> The term *current liabilities* is used principally to designate obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets, or the creation of other current liabilities . . . the classification is intended to include obligations for items which have entered into the operating cycle, such as payables incurred in the acquisition of materials and supplies to be used in the production of goods or in providing services to be offered for sale; collections received in advance of the delivery of goods or performance of services; and debts which arise from operations directly related to the operating cycle, such as accruals for wages, salaries, commissions, rentals, royalties, and income and other taxes. Other liabilities whose regular and ordinary liquidation is expected to occur within a relatively short period of time, usually twelve months, are also intended for inclusion, such as short-term debts arising from the acquisition of capital assets, serial maturities of long-term obligations, amounts required to be expended within one year under sinking fund provisions, and agency obligations arising from the collection or acceptance of cash or other assets for the account of third persons.

In applying the foregoing definitions, the predominant practice in the construction industry for contractors whose operating cycle exceeds one year is to classify all contract-related assets and liabilities as current under the operating cycle concept and to follow the more specific guidance in the bulletin in classifying other assets and liabilities. To promote uniformity of presentation and to narrow the range of variations in practice, the division recommends that contractors follow those general rules in applying the bulletin. The following is a list of types of assets and liabilities that are generally considered to be contract related and that should generally be classified as current under the operating cycle concept.

a. Contract-related assets include
- Accounts receivable on contracts (including retentions).
- Unbilled contract receivables.
- Cost in excess of billings and estimated earnings.
- Other deferred contract costs.
- Equipment and small tools specifically purchased for, or expected to be used solely on, an individual contract.

b. Contract-related liabilities include
- Accounts payable on contracts (including retentions).
- Accrued contract costs.
- Billings in excess of cost and estimated earnings.
- Deferred taxes resulting from the use of a method of income recognition for tax purposes different from the method used for financial reporting purposes.
- Advanced payments on contracts for mobilization or other purposes.
- Obligations for equipment specifically purchased for, or expected to be used solely on, an individual contract regardless of the payment terms of the obligations.
- Provision for losses on contracts (see paragraph 89 of the SOP).

Following the foregoing guidance in preparing classified balance sheets will promote consistency in practice and facilitate consolidation of construction contracting segments of a company with segments not engaged in construction contracting.

Retentions Receivable and Payable

Retentions receivable or payable that will not be realized or paid within a company's normal operating cycle, which may possibly occur because of special arrangements with owners or vendors, should be classified as noncurrent.

Investments in Construction Joint Ventures

An investor should follow the guidance in chapter 3 on acceptable financial statement presentation of investments in construction joint ventures. If a joint venture investment is presented on the cost or equity basis, the investment should be classified as noncurrent unless the venture is expected to be completed and liquidated during the current operating cycle of the investor.

Losses in excess of an investment should be presented as a liability, and the classification principle for assets should apply.

Equipment

Equipment that is acquired for a specific contract, that will be used only on that contract, and that will be consumed during the life of the contract or disposed of at the conclusion of the contract should be classified as a contract cost.

Excess Billings

Billings in excess of costs and estimated earnings should generally be classified as a current liability. However, to the extent that billings exceed total estimated costs at completion of the contract plus contract profits earned to date, such an excess should be classified as deferred income. Some believe that all or part of the billings in excess of costs and estimated earnings should be classified as a noncurrent credit under the concept that the amount represents deferred income or a deferred credit. Nevertheless, the division concluded that such a position lacks substantive support and, except in those circumstances that would result in excesses of the type identified in the second sentence of this paragraph, excess billings should be regarded as obligations for work to be performed and classified as current liabilities.

Liabilities

For a company with an operating cycle in excess of one year, liabilities related to contracts should be classified as current on the basis of the operating cycle. For example, if a classified balance sheet is prepared using an operating cycle longer than one year, all contract-related assets to be realized within the operating cycle and related liabilities maturing within that cycle should be classified as current. Other liabilities should be classified on the basis of the specific guidance in chapter 3 of ARB no. 43.

Deferred Income Taxes

Deferred taxes represent the tax effects resulting from timing differences recognized in the determination of income tax expense in current and prior periods. Deferred taxes should be classified in accordance with FASB Statement No. 37, *Balance Sheet Classification of Deferred Income Taxes.*

Offsetting or Netting Amounts

A basic principle of accounting is that assets and liabilities should not be offset unless a right of offset exists. Thus the net debit balances for certain contracts should not ordinarily be offset against net credit balances relating to others, unless the balances relate to contracts that meet the criteria for combining in the SOP.

ARB no. 45 recognized the principle of offsetting in discussing the two accepted methods of accounting for long-term construction-type contracts. For the percentage-of-completion method, the bulletin states

> . . . current assets may include costs and recognized income not yet billed, with respect to certain contracts; and liabilities, in most cases current liabilities, may include billings in excess of costs and recognized income with respect to other contracts.

In commenting on the completed-contract method, the bulletin states

> . . . an excess of accumulated costs over related billings should be shown in the balance sheet as a current asset, and an excess of accumulated billings over related costs should be shown among the liabilities, in most cases as a current liability. If costs exceed billings on some contracts, and billings exceed costs on others, the contracts should ordinarily be segregated so that the figures on the asset side include only those contracts on which costs exceed billings, and those on the liability side include only those on which billings exceed costs.

Offsetting should be applied in the same way under the percentage-of-completion method.

Although the suggested mechanics of segregating contracts between those on which costs exceed billings and those on which billings exceed costs do not indicate whether billings and related costs should be presented separately or combined (netted), separate disclosure in comparative statements is preferable because it shows the dollar volume of billings and costs (but not an indication of future profit or loss). In addition, grantors of credit, such as banks and insurance companies, have expressed a preference for separate disclosure. Disclosure may be made by short extension of the amounts on the balance sheet or in the notes to the financial statements. Thus, under the percentage-of-completion method, the current assets may disclose separately total costs and total rec-

ognized income not yet billed for certain contracts, and current liabilities may disclose separately total billings and total costs and recognized income for other contracts. The separate disclosure of revenue and costs in statements of income is the generally accepted practice. Only through comparable presentation of such data in the balance sheet can the reader adequately evaluate the contractor's comparative position.

An advance received on a cost-plus contract is usually not offset against accumulated costs unless it is definitely regarded as a payment on account of work in progress. Such advances generally are made to provide a revolving fund and are not usually applied as partial payment until the contract is nearly or fully completed. However, advances that are definitely regarded as payments on account of work in progress should be shown as a deduction from the related asset, and the amounts should be disclosed. Also, for advance payments on a terminated government contract, the financial statements of the contractor issued before collection of the claim should ordinarily reflect any balance of those advances as deductions from the claim receivable.

Disclosures in Financial Statements

In addition to the financial statement disclosures generally required in an entity's financial statements, the following disclosures should be made in the notes to the financial statements of contractors if they are not disclosed in the body of the financial statements.

Significant Accounting Policies

In accordance with APB Opinion 22, significant accounting policy disclosures should include the following:

a. *Method of reporting affiliated entities.* Information relating to the method of reporting by affiliated entities should be disclosed, along with the disclosures recommended in chapter 4.

b. *Operating cycle.* If the operating cycle exceeds one year, the range of contract durations should be disclosed.

c. *Revenue recognition.* The method of recognizing income (percentage of completion or completed contract) should be disclosed.
   1. If the percentage-of-completion method is used, the method of computing percentage of completion (e.g., cost to cost, labor hours) should be disclosed.

2. If the completed-contract method is used, the reason for selecting that method should be indicated (e.g., numerous short-term contracts for which financial position and results of operations reported on the completed-contract basis would not vary materially from those resulting from use of the percentage-of-completion method; inherent hazards or undependable estimates that cause forecasts to be doubtful).

d. Method of reporting joint venture investments. The method of reporting joint ventures should be disclosed, along with other joint venture disclosures.

e. Contract costs.

1. The aggregate amount included in contract costs representing unapproved change orders, claims, or similar items subject to uncertainty concerning their determination or ultimate realization, plus a description of the nature and status of the principal items comprising such aggregate amounts and the basis on which such items are recorded (for example, cost or realizable value).
2. The amount of progress payments netted against contract costs at the date of the balance sheet.

f. Deferred costs. For costs deferred either in anticipation of future sales (precontract costs) or as a result of an unapproved change order, the policy of deferral and the amounts involved should be disclosed.

Revised Estimates

Revisions in estimates of the percentage of completion are changes in accounting estimates as defined in APB Opinion no. 20, *Accounting Changes.* (See paragraphs 82 and 83 of the SOP.) Paragraph 84 of the SOP states:

> Although estimating is a continuous and normal process for companies in the contracting business, the second sentence of paragraph 33 of APB Opinion 20 recommends disclosure of the effects of significant revisions if the effect is material.

Backlog on Existing Contracts

In the construction industry, one of the most important indexes is the amount of backlog on uncompleted contracts at the end of the current year as compared with the backlog at the end of the prior year. Contractors are encouraged to present backlog information

for signed contracts on hand whose cancellation is not anticipated. Backlog can be reported by industry or type of facility and by location (domestic or foreign). Additional disclosures that a company may want to make include backlog on letters of intent and a schedule showing backlog at the beginning of the year, new contract awards, revenue recognized for the year, and backlog at the end of the year. The presentation of backlog information is desirable only if a reasonably dependable determination of total revenue and a reasonably dependable estimate of total cost under signed contracts or letters of intent can be made. Information on signed contracts should be segregated from information on letters of intent if both types of information are presented.

Receivables

If receivables include billed or unbilled amounts under contracts representing unapproved change orders, claims, or similar items subject to uncertainty concerning their determination or ultimate realization, the balance sheet, or a note to the financial statements, should disclose the amount, a description of the nature and status of the principal items comprising the amount, and the portion, if any, expected to be collected after one year. Paragraphs 61 to 63 and 65 to 67 of the SOP discuss accounting for change orders and claims.

If receivables include other amounts representing the recognized sales value of performance under contracts and if the amounts had not been billed and were not billable to customers at the date of the balance sheet, these amounts, a general description of the prerequisites for billings, and the portion, if any, expected to be collected after one year should be disclosed.

If it is not probable that a claim will result in additional contract revenue or if the amount cannot be reliably estimated, disclosure of a contingent asset should be considered. When disclosing contingencies that might result in gains, in accordance with paragraph 17 of Financial Accounting Standards Board Statement no. 5, care should be exercised to avoid misleading implications as to the likelihood of realization.

If receivables include amounts maturing after one year, the following should be disclosed:

- The amount maturing after one year and, if practicable, the amounts maturing in each year.

- Interest rates on major receivable items, or on classes of receivables, maturing after one year or an indication of the average interest rate or the range of rates on all receivables.

If receivables include amounts representing balances billed but not paid by customers under retainage provisions in contracts, a contractor should disclose, either in the balance sheet or in a note to the financial statements, the amounts included, the portion (if any) expected to be collected after one year, and, if practicable, the years in which the amounts are expected to be collected. The portion of retainages not collectible within one year, or within the operating cycle if it is longer than one year, should be classified as noncurrent in a classified balance sheet.

Auditing

Chapter 7

Auditing Within the Construction Industry

The objective of the auditing section of the guide is to assist the independent auditor in applying generally accepted auditing standards in examinations of the financial statements of companies in the construction industry. Independent auditors often encounter a variety of complex problems in such engagements because of the nature of operations in the industry and because of the methods used in accounting for contracts, matters that are discussed in the accompanying statement of position, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts* (Appendix I), and in the other sections of the guide.

Audit Focus

In audits of construction contractors, the primary focus is on the profit centers, usually individual contracts, for recognizing revenues, accumulating costs, and measuring income. The auditor must obtain a thorough understanding of the contracts that underlie the financial statements, and the audit procedures followed in an audit of a contractor should be related to those contracts. Evaluation of the profitability of contracts or profit centers is central to the total audit process and to the determination of whether the information in the financial statements is presented in conformity with generally accepted accounting principles.

The methods and the bases of measurement used in accounting for contracts require the independent auditor to review estimated contract costs, measures of extent of progress toward completion, revenues, and gross profit to form a conclusion on the reasonableness of costs, revenue, and gross profit allocated to the period

examined. Thus, much of the independent auditor's work involves evaluating subjective estimates relating to future events, a process which involves highly technical data.

In the audits of construction contractors, the areas that should receive particular attention include a company's system of internal accounting control, its operating systems and procedures, its project management, the nature of its contracting work, its history of performance and profitability, and other relevant accounting and operating factors. The auditor's primary concerns are internal accounting controls and those administrative controls that bear on the reliability of the financial statements. The auditor should consider tests of compliance with internal accounting control procedures and should perform substantive tests of contract revenues, costs, gross profit or loss, and related contract receivables and payables. In determining the extent of the tests, the auditor should consider the number and significance of individual contracts that appear to pose a high potential risk or to be otherwise troublesome. The objectives should be to obtain an overview of contract status and to document findings.

Scope of Section

The auditing section of this guide deals primarily with auditing procedures peculiar to audits of construction contractors. It does not discuss auditing procedures that are not unique to such audits or that do not require special application in them; the auditor should refer to other sources for those requirements. The ten generally accepted auditing standards, approved and adopted by the membership of the American Institute of Certified Public Accountants, are explained and distinguished from auditing procedures in Statement on Auditing Standards no. 1. The focus in this section of the guide is primarily on the second and third standards of field work and on auditing procedures used in compliance with those two standards. Those standards are the following:

- There is to be a proper study and evaluation of the existing internal control as a basis for reliance thereon and for the determination of the resultant extent of the tests to which auditing procedures are to be restricted.
- Sufficient competent evidential matter is to be obtained through inspection, observation, inquiries, and confirmations to afford a reasonable basis for an opinion regarding the financial statements under examination.

Chapter 8

Internal Accounting and Administrative Controls in the Construction Industry

The discussion of controls in this chapter relates to management's responsibility to maintain both internal accounting controls and administrative controls. The discussion is primarily from management's perspective; and internal accounting controls and administrative controls are not always clearly distinguished because, from management's perspective, they often overlap. The discussion is intended to provide the auditor with an overview of the types of desirable controls (both accounting and administrative) that contribute to audit efficiency.

This chapter is not intended to provide the auditor with guidance except as background material. As indicated in paragraphs 320.11 and 320.12 of Statement on Auditing Standards no. 1 and as recognized in chapter 9 of this guide, the auditor's primary concern is to evaluate internal accounting controls plus those administrative controls that bear on the reliability of financial statements. The auditor's responsibility for studying and evaluating those controls is discussed in chapter 9 of this guide.

This chapter presents a general discussion of some of the desirable internal accounting and administrative controls in the construction industry. While not all the controls identified are found in every construction company, their discussion can serve as guidance concerning what might be considered adequate controls for a contractor. This discussion considers aspects of controls in the following areas:

- Estimating and bidding

- Project administration and contract evaluation
- Job site accounting and controls
- Billing procedures (including determination of reimbursable costs under cost-plus contracts)
- Contract revenues
- Contract costs
- Construction equipment
- Claims, extras, and back charges
- Joint ventures
- Internal audit function

Estimating and Bidding

Controls over the estimating and bidding functions are necessary to provide reasonable assurance that contracts are bid or negotiated on the basis of data carefully compiled to take into account all factors that will affect the cost, revenue, and profitability of each contract. Unreliable estimates and bids can obscure losses on contracts in their early stages or can overstate or understate the estimated profitability of contracts.

A contractor's system of control over estimating and bidding should provide for adequate documentation, clerical verification, and overall review of estimated costs and should require that deliberate "low bids" are approved by appropriate levels of management. Estimates should be based on contract specifications, plans, and drawings to provide assurance that the estimates of contract costs reflect all relevant cost elements. Prices and quantities used should be derived from reliable sources. Escalation clauses, if they are possible, are desirable in contracts to protect against unforeseen increases in material and labor costs, particularly for contracts of long duration. The contractor should establish internal procedures to verify the clerical accuracy of final contract estimates. The contractor should have prescribed procedures to review the completeness and reasonableness of the final estimate; for example, two independent estimates may be desirable on complex or large contracts. The procedures followed should, to the extent possible, preclude arbitrary, undocumented management-level adjustments to estimated costs.

The estimate of contract costs and the accounting records should

be prepared and maintained in a consistent manner that will permit subsequent detailed comparison of actual costs with estimated costs. A record should be maintained of the bids submitted by competing firms, if those bids are available. Such cost and bid information is helpful to management and may provide them with evidence of the reliability of their estimating and bidding process.

To provide continuing assurance that desirable internal accounting control is maintained over the estimating and bidding functions, a contractor should have assigned personnel regularly perform monitoring procedures. For instance, a contractor might assign personnel to perform the following tasks:

- Review the quantities of material and hours of labor in bid estimates and compare them to the customers' specifications.
- Compare and relate estimated material costs to published vendor price lists, price quotations, subcontractors' bids, or other supporting documentation.
- Compare and relate estimated labor rates to union contracts and other documentation supporting labor rates, payroll taxes, and fringe benefits.
- Compare and relate estimated equipment costs to the rates charged by suppliers for rental or used by the contractor to allocate the cost of owned equipment to jobs.
- Recognize the effects of cost increases, including historical trends, the anticipated results of future labor negotiations, the effect of unusual geographic location, the sources and availability of materials and labor, and inflation. The desirable control objective of the procedure is that bids should reflect an assessment of possible future increases in labor costs during the period of the contract.
- Verify the clerical accuracy of estimates.
- Determine that estimates are reviewed and approved by designated management personnel.
- Review contracts periodically to assess the extent and effect of management changes or revisions of bids without supporting data such as revised cost estimates.
- Update estimates periodically based on documented discussions with engineering personnel responsible for the project.

As discussed in chapter 9, the auditor should review and

evaluate such procedures and consider applying similar procedures on a test basis in the study and evaluation of internal control.

Project Administration and Contract Evaluation

The quality and extent of project management often determine whether a construction contract is profitable or unprofitable. Timely and reliable progress, cost, and status reports on each contract are essential to enable management to evaluate the status and profitability of each project. To be useful, the reports should be timely and frequent enough to enable management to identify problems at an early stage. Regularly scheduled meetings with project managers and periodic management visits to job sites may also enhance the effectiveness of project administration.

Management should review and evaluate regularly the status of each contract in progress to estimate the profit or loss. That procedure provides information that enables management to take corrective action to improve performance on a given contract, and it is an integral part of an effective system of internal accounting control. Management's review of individual contracts should be comprehensive; as part of the review, detailed actual costs plus a realistic estimate of costs to complete all phases of the project should be compared with the details of the original estimate and the total contract price. Information considered in the review should include items such as the following:

- Cost records, which should be used for a comparison of the principal components of actual costs with original estimates.
- Open purchase orders and commitments.
- Reports such as engineering progress reports, field reports, and project managers' status reports.
- Conferences with project engineers and independent architects.
- Correspondence files.
- Change orders.

If there are significant subcontract costs, the contractor should have controls to provide that payments to subcontractors are made only on the basis of work performed, that performance bonds are obtained, and that retentions are recorded and accounted for properly.

Job Site Accounting and Controls

The size and location of some construction projects may require a contractor to establish an accounting office at the job site, and all or part of the accounting function relating to that project—including payrolls, purchasing, disbursements, equipment control, and billings—may be performed at the job site. Establishing a system of internal control at job site accounting offices may be difficult because such offices are temporary and may be staffed with a limited number of trained accounting personnel. Therefore, particular attention should be directed to the areas discussed in the following paragraphs.

The temporary nature of the employment of most construction workers and the frequent practice of paying them in cash can make the establishment of controls difficult. Construction contractors should consider having internal auditors, or corporate administrative personnel, periodically disburse or observe payrolls at job sites to strengthen internal control over payrolls.

Established accounting procedures should require a designated level of management to authorize all material purchases at job sites and should specify the documentation required as evidence of receipt of materials. Payments for materials should not be made without proper authorization and evidence of receipt.

A contractor should establish and maintain adequate physical controls over equipment, materials, and supplies at job sites to help prevent loss by pilferage or unauthorized usage. The system should also provide that surplus materials are inventoried at the completion of a contract and that the subsequent disposition of such materials is appropriately reviewed and accounted for. The general accounting department should maintain effective supervision over job site offices, particularly if the size or nature of a contractor does not permit the establishment of an internal audit function.

Billing Procedures

Billing procedures in the construction industry differ from those in other industries. A typical manufacturing company, for example, normally bills a customer on the shipment of its product. In contrast, billing procedures in the construction industry vary widely among companies and are often not correlated with performance. Different types of contracts and different ways of measuring per-

formance for billing purposes are prevalent. For example, billings may be based on various measures of performance, such as cubic yards excavated, architects' estimates of completion, costs incurred on cost-plus type contracts, or time schedules. Also, the data required to prepare a billing for a fixed-price contract differ from the data required for a cost-plus contract.

The system of internal control should provide that personnel responsible for billing receive accurate, timely information from job sites. Since billing and payment terms often vary from contract to contract, the personnel responsible for billing should be familiar with the terms of the contracts, and billing procedures should be designed to recognize unique contract features. Billings that are not made in accordance with the terms of the contract should be approved by designated management personnel.

A contractor's receivables usually include retentions, that is, amounts that are not due until contracts are completed or until specified contract conditions or guarantees are met. Retentions are governed by contract provisions and are typically a fixed percentage (for example, 5 percent or 10 percent) of each billing. Some contracts provide for a reduction in the percentage retained on billings as the contract nears completion. A contractor's billing procedure and related internal control should provide that a contractor bill retentions in accordance with the terms of a contract and that accounts are reviewed periodically to determine that retention payments are ultimately received. A contractor should also have a routine procedure for filing liens at the time of each billing to provide assurance that lien rights are protected before they expire.

To provide continuing assurance that desirable internal accounting control is maintained over the billing function, a contractor should have assigned personnel regularly perform monitoring procedures. A contractor might assign personnel to perform the following tasks:

- Relate billings, including retentions, to the terms of the original contract and of approved change orders.
- Accumulate and retain the data necessary to prepare and support billings, including costs incurred to date, engineers' estimates of completion, architects' certifications, and other pertinent information.

As discussed in chapter 9, the auditor should review and

evaluate such procedures and consider applying similar procedures on a test basis in the study and evaluation of internal control.

Contract Costs

A contractor uses information on contract costs to control costs, to evaluate the status and profitability of contracts, and to prepare customer billings. Thus, the importance of accurate cost information cannot be overemphasized.

Contract cost records should be designed to facilitate detailed comparisons of actual costs with estimated costs. The records should provide for the classification and summarization of costs into appropriate categories such as materials, subcontract charges, labor, labor-related costs, equipment costs, and overhead. The accounting system should provide for the periodic submission of detailed cost reports to management and to project managers. Their review of the reports serves to identify potential problems on contracts, to check on the reasonableness of the cost records, and to minimize the possibility of having unauthorized costs charged to the contract.

A contractor should establish internal accounting control procedures over contract costs, prescribe the manner in which they are applied, and assign responsibility to designated personnel. Internal control procedures should assure, for example, that the detail contract cost records are in agreement with the general ledger control records and that proper cutoffs are made at the close of each accounting period. To provide continuing assurance that desirable internal accounting control is maintained over contract costs, a contractor should have assigned personnel regularly perform monitoring procedures. Assigned personnel should

- Compare and relate the quantities and prices of materials charged to contracts to vendors' invoices, purchase orders, and evidence of receipt of materials and, if applicable, withdrawal and return documents from central stores.
- Document labor charged to contracts by reference to payroll records and related documents, such as time cards, union contracts or pay authorizations, authorized deductions, and cancelled payroll checks; and review payroll distribution to individual contracts.
- Relate subcontract costs charged to contracts to the terms

specified in the subcontract agreements and supporting documents.

- Inspect performance, guarantee, and similar bonds of subcontractors.
- Compare and relate retentions payable to subcontractors to subcontract agreements.
- Inspect waivers of lien on completed work from subcontractors.
- Approve back charges, extras, and claims.
- Compare and relate equipment rental costs charged to contracts (*a*) to the contractor's standard rates for owned equipment and to vendor invoices or rental agreements for leased equipment and (*b*) to delivery reports, production or maintenance records, or similar data.
- Compare equipment costs charged directly to a contract (purchased for exclusive use on a particular contract, such as a cement plant and related trucks) to vendor invoices and related documents, and control the disposition of such equipment.
- Accumulate and allocate indirect costs to contracts.
- Accumulate reimbursable costs under cost-plus contracts and segregate those costs in the accounts.

As discussed in chapter 9, the auditor should review and evaluate such procedures and consider applying similar procedures on a test basis in the study and evaluation of internal control.

Contract Revenues

A contractor's internal accounting control over contract revenues should be designed to provide reliable information on the amount and timing of contract revenue. The types of control established depend on the method of revenue recognition used. Controls should relate not only to amounts of revenue expected from contracts but also to the procedures and information used either in measuring progress toward completion (to determine the amount of earned revenue under the percentage-of-completion method) or in determining when a contract is substantially completed (under the completed-contract method).

To provide continuing assurance that desirable internal accounting control is maintained over contract revenues, a contractor

should have assigned personnel regularly perform monitoring procedures. Assigned personnel should

- Prepare and support current estimates of total revenue under each contract in process.
- Process and approve change orders and inform personnel responsible for performance of contracts of those change orders.
- Determine that revenue arising from unpriced change orders and claims does not exceed the related recoverable costs, and that only costs that are reimbursable in accordance with the terms of cost-plus contracts are included in revenue.
- Provide for timely notification of, and adjustments for, contract cancellations and postponements.
- Select methods to measure progress that are suitable to the circumstances and apply the methods consistently.
- Accumulate and verify the information used to measure the extent of progress toward completion, such as labor hours and units of output.
- Verify the accuracy of the computations of the percentage of completion, earned revenue, and the cost of earned revenue.
- Review and document contracts reported on the completed-contract basis for consistent application of completion criteria.
- Evaluate periodically the profitability of contracts and provide for losses on loss contracts in full at the earliest date on which they are determinable.
- Reconcile periodically the total earned revenue on a contract to total billings on the contract.

As discussed in chapter 9, the auditor should review and evaluate such procedures and consider applying similar procedures on a test basis in the study and evaluation of internal control.

Construction Equipment

Contractors frequently have substantial investments in construction equipment. The dollar amounts involved and the necessity of charging equipment costs to contracts make it necessary to maintain physical and internal accounting controls over equipment. Records should be maintained for all major equipment; reporting

procedures to control and record the transfer of equipment between projects should be in effect; and periodic equipment reports should indicate the location of the equipment (to facilitate review by project managers). Field equipment should be physically inventoried periodically and at the completion of each project. The equipment records should include adequate cost information that is in agreement with the general accounting records; this information enables the contractor to charge each project with costs related to the equipment being used on it.

Small equipment, such as power hand tools, which is often charged directly to a contract, should be subject to appropriate physical control at the job site to prevent loss or pilferage.

Claims, Extras, and Back Charges

A contractor should establish and maintain control over claims, extras, back charges, and similar items to provide reasonable assurance that such items are properly documented and to provide for the accumulation of related revenues and costs. For example, one desirable procedure is to require written authorizations for change orders from an authorized customer representative before doing extra work.

Joint Ventures

Control over the operations of joint ventures is essential for the financial success of the venture and the participating contractors. Although the nature and extent of control over the operations and the accounting records of joint ventures vary with each venture, a joint venture participant should be satisfied that adequate accounting records and desirable internal controls are maintained.

Internal Audit Function

Contractors engaged in large, complex, and diverse operations especially benefit from internal auditing. An internal audit staff may conduct both operational and financial reviews at a contractor's administrative offices as well as at job sites. The reviews should cover the estimates of cost to complete and the methods used to measure performance on individual contracts. Internal auditors should be involved in testing and evaluating every important control area discussed in this chapter. Their intimate involvement

can provide management with continuous feedback on the system's effectiveness and the degree of compliance with company policies, and such involvement can enable the internal auditors to make recommendations for improvements in the company's policies and its system of internal accounting control.

One of the objectives of internal audits at job sites is to determine whether personnel at the sites are complying with the contractor's established policies and practices. Such audits may involve a physical inspection of equipment and review and testing of expenditures (including payroll disbursements) from a job site office, status reports to the home office, field equipment records, and contract billings to determine their appropriateness.

Chapter 9

Planning the Audit and Studying and Evaluating Internal Accounting Control

The preceding chapter discusses, from the perspective of management, the desirable features of administrative and accounting internal control that a contractor should establish and maintain. This chapter discusses the auditor's responsibility for planning the audit and for studying and evaluating the nature and effectiveness of the controls maintained by the management of a contractor. Sections 320.11 and 320.12 of SAS no. 1 state that the auditor's primary concern is to evaluate internal accounting controls including those administrative controls that bear on the reliability of financial statements.

Planning the Audit

In planning an audit, the auditor's objective is to obtain knowledge of the business, the construction industry, and the operations of the contractor being audited, in accordance with the guidelines in SAS no. 22, *Planning and Supervision.* The auditor should obtain a thorough understanding of the nature of the contractor's work, the types of contracts performed, the nature of internal accounting controls maintained by management, and the contractor's accounting system. After becoming familiar with the industry and the operations of the contractor, the auditor should review a representative sample of the contractor's outstanding contracts and evaluate the contractor's internal accounting control.

Review of Contracts

To obtain a general understanding of a contractor's operations, the auditor should review the terms of a representative sample of the contractor's contracts, including significant contracts, currently in force. These should include both contracts with customers and contracts with subcontractors. Information that the auditor would expect to find is set forth below. The auditor should use this information in the preliminary review of contracts and also in the other stages of the audit.

- Job number
- Type of contract
- Contract price
- Original cost estimate and related gross profit
- Billing and retention terms
- Provisions for changes in contract prices and terms, such as escalation, cancellation, and renegotiation
- Penalty or bonus features relating to completion dates and other performance criteria
- Bonding and insurance requirements
- Location and description of project

Contract files may indicate bids entered by other contractors. If these are available, the auditor should consider investigating significant differences between such bids and the related contracts to evaluate whether there may be inherent errors in the estimating and bidding process.

Review and Evaluation of Internal Accounting Control

After obtaining a general understanding of the contractor's operations from a review of contracts, the auditor should study and evaluate the system of internal accounting control to establish a basis for reliance on the selected controls in determining the nature, extent, and timing of audit tests to be applied in the examination of financial statements. The review of internal accounting control should be conducted through inquiries and observations and

should be documented by the auditor. Internal accounting control questionnaires, narrative descriptions, flowcharts, analyses of EDP procedures, and other techniques should be used in this phase of the audit because those techniques enable the auditor to approach the review of the system of internal accounting control in a systematic manner and provide an effective means of documentation. The auditor should also evaluate, through inquiries and observations, the extent to which the contractor's personnel are performing their assigned responsibilities in accordance with the established internal accounting control procedures and to what extent, if any, incompatible responsibilities are being performed by the same individual.

If the contractor has an internal audit function, the auditor, in accordance with the provisions of SAS no. 9, should take that into consideration as part of the evaluation of internal accounting control.

A wide variety of conditions, such as the materiality of specific contracts, influence the auditor's selection of specific audit procedures. The audit program should be designed on the basis of the auditor's preliminary evaluation of the strengths and weaknesses in the contractor's system of internal accounting control, the review of significant contracts, and all other relevant information. The audit program may later require modification to reflect the results of the auditor's compliance tests concerning the effectiveness of the contractor's internal accounting control.

Tests of Compliance

The objective of compliance testing (see SAS no. 1, paragraph 320.50) is to evaluate the degree to which the internal accounting control procedures described by management are in use and are operating as planned. Compliance tests are necessary if the auditor plans to rely on the contractor's internal accounting control in determining the nature, timing, or extent of substantive tests. Substantive tests (see section 320.70 of SAS no. 1) consist of all the analytical review procedures and tests of details of the particular classes of transactions and balances that the auditor deems necessary in the circumstances. If the results of the compliance tests show that the contractor's internal accounting controls are not being applied as prescribed (and as indicated by the preliminary review), the auditor should modify the original audit program and

consider alternative audit procedures that should be applied. Section 320.55 of SAS no. 1 states the following:

> The auditor may decide not to rely on prescribed procedures because he concludes either (*a*) that the procedures are not satisfactory for that purpose or (*b*) that the audit effort required to test compliance with the procedures to justify reliance on them in making substantive tests would exceed the reduction in effort that could be achieved by such reliance.

The discussion of tests of compliance relates only to those aspects of a contractor's system of internal accounting control that the auditor intends to rely on in determining the nature, timing, or extent of substantive tests. The preceding chapter outlines desirable elements of internal accounting control for estimating and bidding, billings, contract costs, and contract revenues. The auditor only relies on those aspects of the internal accounting control that he finds to be acceptable. For those aspects the auditor should satisfy himself, through the use of compliance tests, regarding the extent to which the control procedures are being applied as prescribed. (For some suggested procedures, see the discussions in chapter 8 of test procedures relating to estimating and bidding, billings, contract costs, and contract revenues.)

Compliance testing consists of examination of evidence, inspection of documents, inquiries of personnel, and observation to evaluate whether control procedures are being performed as prescribed. The auditor should select, on a statistical or nonstatistical basis, a sample of transactions subject to the internal accounting control that the auditor plans to rely on. Testing those transactions requires inspection of documents to obtain evidence of the performance of the required procedures.

Material weaknesses and deficiencies in internal accounting control, audit efficiency, or other factors may cause the auditor to conclude that he cannot rely on the controls that he had planned to rely on. If the auditor concludes that little or no reliance can be placed on the contractor's internal accounting control, the auditor will need to determine the current status of contracts by expanding substantive tests of supporting data, such as contract costs and revenues.

Chapter 10

Major Auditing Procedures for Contractors

This chapter provides guidance on the major auditing procedures that should be followed in audits of construction contractors. The areas discussed are job site visits, accounts receivable, liabilities related to contracts, contract costs, income recognition, and review of backlog on existing contracts.

Job Site Visits

In certain situations job site visits are essential for the auditor to understand the contractor's operations and to relate the internal accounting information to events that occur at the job sites. All or part of the accounting function relating to a given project may be performed at a temporary job site office staffed by a limited number of trained accounting personnel, and internal control at job sites may be weak. Observations and discussions with operating personnel at the job sites may also assist the auditor in assessing physical security, the status of projects, and the representations of management (for example, representations about the stage of completion and estimated costs to complete). The auditor may therefore visit selected job sites to meet the following three objectives:

- To gain an understanding of the contractor's method of operations.
- To review the system of internal accounting control over records maintained at the job sites, if the auditor expects to rely on the system.
- To obtain information relating to job status and problems (if any) that may be useful in other phases of the examination.

These three objectives can usually be achieved during one visit to a job site. To do so, however, requires careful planning so that the information to be obtained or examined will be identified before the visit. Furthermore, to meet the third objective, it is usually desirable, before selecting the job sites to be visited, to consider (*a*) the quality of the contractor's internal accounting controls, (*b*) the size, nature, significance, and location of projects, and (*c*) projects that have unusual features or that appear to be troublesome. Unusual or troublesome contracts may include those accounted for under the percentage-of-completion method on the basis of estimates in ranges (paragraph 25(*b*) of the SOP) or on the basis of zero profit estimates (paragraph 25(*c*) of the SOP), those that are combined or segmented for accounting purposes (paragraphs 35 to 42 of the SOP), those with significant unpriced change orders or unsatisfied claims (paragraphs 60 to 63 and 65 to 67 of the SOP), and those subject to unusual risks because of factors such as location, ability to complete turnkey projects satisfactorily, postponement or cancellation provisions, or disputes between the parties.

To accomplish audit objectives, job site visits may be made at any time during the year or at the end of the year. The auditor should base his decision on an evaluation of other factors in the audit, such as the quality of internal accounting controls, the number, size, and significance of projects, the existence of projects with unusual or troublesome features, and the method of accounting for revenue. However, if the contractor's internal accounting controls are evaluated as weak and if the contractor has in progress any large projects that individually have a material effect on the contractor's results of operations or any projects that have unusual features or that appear to be troublesome, the auditor should consider selecting those projects for visits at or near the year-end.

In addition to a review of the system of internal control and tests of the accounting records, the independent auditor should consider performing procedures such as the following during a job site visit:

- Observation of uninstalled materials.
- Observation of work performed to date.
- Observation of contractor-owned or rented equipment.
- Discussions with project managers, supervisors, and other appropriate individuals, including, if possible, the independent architect, regarding the status of the contract and any significant problems.

At the completion of a job site visit, the auditor should have collected information concerning the organization and management of the job, the accounting reports submitted to the general accounting office, the present status of the job, and unusual matters affecting the estimated costs to complete the project.

Accounts Receivable

The general approach to the audit of a construction contractor's accounts receivable is similar to that followed in the audit of accounts receivable of industrial and commercial enterprises. The auditor confirms accounts receivable, including retentions. The confirmation should request other pertinent information, such as the contract price, payments made, and status of the contract. Exhibit 1 is a sample confirmation letter requiring positive confirmation. Negative confirmations may also be used.

Certain characteristics of a construction contractor's accounts receivable, such as the following, require special consideration:

- Unbilled receivables
- Retentions
- Unapproved change orders, extras, and claims
- Contract scope changes
- Contract guarantees and cancellation or postponement provisions
- Collectibility

Other characteristics that may require special consideration include approved but unpriced change orders and government contracts under which the contractor proceeds with all phases of the contract even though government funding is approved piecemeal.

Unbilled Receivables

Unbilled receivables arise when revenues have been recorded but the amount cannot be billed under the terms of the contract until a later date. Specifically, such balances may represent (1) unbilled amounts arising from the use of the percentage-of-completion method of accounting, (2) incurred cost to be billed under cost-reimbursement-type contracts, or (3) amounts arising from routine lags in billing (for example, for work completed in one

EXHIBIT 1

Sample Confirmation Request to Owner, General Contractor, or Other Buyer

Re: (*Description of Contract*)

Gentlemen:

Our independent auditors, (*name and address*), are engaged in an examination of our financial statements. For verification purposes only, would you kindly respond directly to them about the accuracy of the following information at (*date*):

1. Original contract price $_____
2. Total approved change orders $_____
3. Total billings $_____
4. Total payments $_____
5. Total unpaid balance $_____ including retentions of $_____
6. Details of any claims, back charges, or disputes concerning this contract (attach separate sheet if necessary)

7. Estimated completion date _____

We enclose a self-addressed, stamped envelope for your convenience in replying directly to our auditors. Your prompt response will be greatly appreciated.

Very truly yours,

Enc.

The above information is:

( ) Correct
( ) Incorrect (please submit details of any differences)

By: _____ _____
Signature Date

_____
Title

month but not billed until the next month). It may not be possible to confirm those amounts as receivables directly with the customer; consequently, the auditor should apply alternative audit procedures, such as the subsequent examination of the billing and collection of the receivables and evaluation of billing information on the basis of accumulated cost data.

Retentions

The contractor's accounting records should provide for separate control for retentions since they are generally withheld until the contract is completed and, in certain instances, for even longer periods. They may also be subject to restrictive conditions such as fulfillment guarantees. The auditor should perform tests in order to evaluate whether retentions are recorded and subject to controls and in order to satisfy himself that they will be collected when due.

Unapproved Change Orders and Claims

Unapproved change orders and claims are often significant and recurring in the construction industry, and the auditor should give special attention to receivables arising from those sources. Paragraphs 62 and 65 of the SOP set forth the circumstances and conditions under which amounts may be recorded as revenue from unapproved change orders and claims. Because of the nature of those receivables, the auditor may encounter difficulties in evaluating their propriety or the collectibility of the related additional revenue. The auditor may be able to confirm the amounts of unapproved change orders or claims with customers; however, if confirmation is not possible or if the amounts are disputed, the auditor should obtain evidence to evaluate the likelihood of settlement on satisfactory terms and the collectibility of the recorded amounts. The conditions that should be met under the SOP before a receivable should be recorded require adequate evidence to allow for such an evaluation. To accomplish such an evaluation, the auditor should review the terms of the contract and should document the amounts by discussions with the contractor's legal counsel and with contractor personnel who are knowledgeable about the contract.

The auditor should evaluate the propriety of accumulated costs underlying unapproved change orders and claims that are the basis for significant additional contract revenues. The following are some of the procedures that may be used in auditing such accumulated costs:

- Tests of the accumulation of costs to underlying invoices, time records, and other supporting documentation. In some circumstances, confirmation of relevant data and related amounts with subcontractors and others may be feasible.
- Consideration of whether the work performed or costs incurred were authorized in writing by the customer. If not, additional contract revenues may not be billable, and the costs may not be recoverable.
- Evaluation of whether the costs relate to work within or outside the scope of the contract. If the costs relate to work within the scope of a lump-sum contract, no basis for additional contract revenues may exist, and the costs may not be recoverable.

The auditor should also evaluate the nature and reasonableness of claimed damages that are attributable to customer-caused delays, errors in specifications that caused incorrect bids, or various other reasons. In connection with such an evaluation, the auditor should consider the quality and extent of the documentary evidence supporting the claim and the extent to which management has pursued the claim; the auditor also should consider consultation with technical personnel. It may also be appropriate to obtain an opinion from legal counsel (1) on the contractor's legal right to file such a claim against the customer and (2) on the contractor's likelihood of success in pursuing the claim.

A claim may be properly supported, but nevertheless may be uncollectible. Many factors influence collectibility, including the relationship between the contractor and the customer. For example, a contractor may be less likely to press for collection of a claim from a major customer. In evaluating a claim, the auditor may consider the contractor's past experience in settling similar claims. If, for example, the contractor has demonstrated a reasonable degree of success in negotiating and settling similar types of claims and if the documentation supporting a claim under review appears to be similar in scope, depth, and content, the auditor may consider such prior experience in evaluating the collectibility of the claim.

Contract Scope Changes

Scope changes on contracts, particularly cost-plus contracts, are often not well documented. Large cost-plus contracts frequently evolve through various stages of design and planning, with numer-

ous starts and stops on the part of both the customer and the contractor. As a result, the final scope of the contract is not always clearly defined. The auditor should carefully examine costs designated to be passed through to the customer under such contracts and should determine whether the costs are reimbursable or whether they should be absorbed by the contractor as unreimbursable contract costs. If receivables arise from contract scope changes that are unapproved or disputed by customers, the auditor should be guided by the recommendations on claims.

Contract Guarantees and Cancellation or Postponement Provisions

Many contracts provide for contract guarantees, such as a guarantee that a power plant, when completed, will generate a specified number of kilowatt hours. A contract may specify a fixed completion date, which, if not met, may result in substantial penalties. For some contracts, retentions and their ultimate realization are related to the fulfillment of contract guarantees. A careful reading of a contract is required to identify guarantees or contingencies associated with a project. The auditor should consider whether the contractor has given adequate consideration to the cost of fulfilling contract guarantees.

In addition, many contracts contain cancellation and postponement provisions. In reviewing significant contracts and subcontracts, the auditor should note such provisions. The construction contractor's internal procedures should provide for timely notification to subcontractors of contracts cancelled or postponed in order to minimize problems and the possibility of litigation.

Cancelled or postponed contracts may be identified in the contractor's records or may be disclosed in other ways during the audit. For example, the auditor's confirmation procedures may disclose cancelled or postponed contracts. The auditor should then satisfy himself that the open balance of accounts receivable, which may in effect be a claim, is valid and collectible.

For a contract that has been cancelled, the auditor should evaluate the contractor's right and ability to recover costs and damages under the contract. If the amounts that the contractor seeks to recover under the contracts are in dispute, they should be evaluated as claims.

For contracts that have been postponed, the auditor should evaluate whether the estimated cost to complete is documented

and reflects inflationary factors that may cause costs to increase because of the delay in the performance of the contract. The auditor should consider the reason for postponement and its ultimate implications, because a postponement could ultimately lead to a cancellation with attendant problems relating to the recoverability of costs. In this area of the examination, the auditor should consider consultation with legal counsel in evaluating the client's contractual rights.

Collectibility

As work progresses on the contract, construction contractors may experience problems relating to the collectibility of receivables that differ from those found in industrial and commercial companies. Problems may result from the long period of the contract, the size of the contract, the possibility for disputes, and the type of financing the customer has arranged. The contractor should evaluate whether the customer has financial substance or has made financing arrangements through a third party with financial substance. The auditor should review the contractor's determination and also consider performing such auditing procedures as a review of financial statements of the customer or a review of the financing arrangements entered into by the customer with a third party, even though there may be no apparent indication that the receivable might not be collectible.

In the evaluation of the ability of the customer to satisfy his obligations, the auditor should also consider the stage of completion of the contract, the past payment performance of the customer, and the amount of the contract price yet to be billed under the contract—not solely the customer's ability to remit the year-end outstanding balance. In the event of indications that a customer may be unable to pay the contractor, the auditor should consider the extent to which bonding arrangements and lien rights will limit possible losses by the contractor. The auditor should consider whether lien rights have been filed to protect the contractor's rights. Some of the information obtained in the evaluation of collectibility may be useful in the audit of amounts recognized as income on the contract.

Liabilities Related to Contracts

The auditor should satisfy himself that liabilities include not only amounts currently due but also retained percentages that apply to

both subcontractors and suppliers who bill the contractor in that manner. The auditor should consider requesting confirmation of balances from specific suppliers and subcontractors. Exhibit 2 is a suggested confirmation form for subcontractors.

The auditor should satisfy himself that the contractor has made a proper cutoff and that all costs, including charges from subcontractors, have been recorded in the correct period. Charges by subcontractors should be in accordance with the terms of their contracts

EXHIBIT 2

Sample Confirmation Request to Subcontractor

Gentlemen:

Our independent auditors, (*name and address*), are engaged in an examination of our financial statements. For verification purposes only, would you kindly submit directly to them the following information with respect to each (or specific) contract(s) in force at (*date*):

1. Original contract price
2. Total approved change orders
3. Total billings
4. Total payments
5. Total unpaid balance, including retentions
6. Total retentions included in total balance due
7. Total amount and details of pending extras and claims in process of preparation, if any (attach separate sheet if necessary)
8. Estimated completion date

We enclose a self-addressed, stamped envelope for your convenience in replying directly to our auditors. Your prompt response will be greatly appreciated.

Very truly yours,

Enc.

and the work performed by the subcontractor. They should not simply represent advances that may be allowable under contract terms. The amounts billable by a subcontractor under the terms of a contract represent the amount that should be recorded in accounts payable; however, the actual work performed on the job represents the amount that should be recorded as allowable cost in determining the extent of progress toward completion. In reviewing liabilities, the auditor should be alert for indications of claims and extras that may be billed by the subcontractor. The review may also disclose amounts that should be accounted for as back charges to the subcontractor under the terms of the contract.

All invoices for services rendered should be recorded as accounts payable even though the amount may not be used in measuring the performance to date on the contract. The auditor should satisfy himself that the contractor has not included amounts not used in measuring performance in both the cost incurred to date and the estimated cost to complete.

The older invoices and retentions included in accounts payable should be reviewed for an indication of defective work, failure on performance guarantees, or other contingencies that may not have been recorded on the contractor's records or included in the estimated cost to complete.

Under the Uniform Commercial Code (UCC), financial institutions and other creditors often file a notice of a security interest in personal property on which they have advanced credit. Notices may be filed with both the state and county in which the property is located. The auditor should consider sending UCC inquiry forms to states and counties in which the contractor has significant jobs. Such inquiries may disclose unrecorded liabilities and security interests, as defined in the Uniform Commercial Code.

Contract Costs

The auditing of contract costs involves two primary areas: the accumulated costs to date and the estimated cost to complete. The auditor should keep in mind that in the audit of a contractor the emphasis is on the contract and the proper recording of contract revenues and costs. The determination of the accuracy of both the cost incurred to date and the estimated cost to complete is necessary for each contract in order to determine whether the gross profit on a contract is recognized in conformity with generally accepted accounting principles.

Income for a contractor is determined by the ultimate profit or estimated profit on each contract and is not based on the billings to date or the cost incurred to date. Under the completed-contract method, profit recognition is deferred until the contract is substantially completed; therefore, the cost incurred to date on uncompleted contracts is not reflected in the determination of current income unless a loss on the contract is anticipated. Conversely, the percentage-of-completion method requires that projected gross profit on the contract be estimated before the gross profit for the period under examination can be determined.

The audit considerations concerning both the accumulated cost to date and the estimated cost to complete are discussed in this section.

Costs Incurred to Date

The auditor should satisfy himself that the contractor has properly recorded costs incurred to date by contracts. The auditor should satisfy himself that the contractor has included in accumulated contract costs identifiable direct and indirect costs and an acceptable and consistent allocation of overhead to specific contracts. For cost-plus contracts, the auditor should satisfy himself that the contractor has not recognized contract revenue based on unreimbursable contract costs. The extent of substantive testing will depend on the evaluation and testing of internal control, as discussed in chapter 9.

Estimated Cost to Complete

One of the most important phases of the audit of a construction contractor relates to estimated costs to complete contracts in process, since that information is used in determining the estimated final gross profit or loss on contracts. Estimated costs to complete involve expectations about future performance, and the auditor should (1) critically review representations of management, (2) obtain explanations of apparent disparities between estimates and past performance on contracts, experience on other contracts, and information gained in other phases of the audit, and (3) document the results of work in these areas. Because of the direct effect on the estimated interim and final gross profit or loss on the contract, the auditor should evaluate whether the contractor's estimate of cost to complete is reasonable.

The information that the auditor should consider using in the review of estimated costs to complete includes the following:

- A summary of the review and evaluation of the system of internal control, with particular emphasis on findings on estimating and bidding, project management and contract evaluation, contract costs, and claims, extras, and back charges, including a summary of the results of internal audits and a discussion of the contractor's historical experience.
- A comparison of costs incurred to date plus estimated cost to complete with the original bid estimate, along with explanations of unusual variances and changes in trends.
- A summary of work performed, to determine that actual or expected contract price and estimated costs to complete include price and quantity increases, penalties for termination or late completion, warranties or contract guarantees, and related items.
- A review of project engineers' reports and interim financial data, including reports and data issued after the balance sheet date, with explanations for unusual variances or changes in projections. Of particular importance would be a review of revised or updated estimates of cost to complete and a comparison of the estimates with the actual costs incurred after the balance sheet date.
- A review of information received from customers or other third parties in confirmations and in conversations about disputes, contract guarantees, and so forth that could affect total contract revenue and estimated cost to complete.
- Discussions with the contractor's engineering personnel and project managers who are familiar with, and responsible for, the contract in process.
- A review of the reports of independent architects and engineers.
- A review of information received from the contractor's attorney that relates to disputes and contingencies.

Not all the above types of evidence are available for all audits of all construction contractors. The auditor should consider the weight to be given to each type of evidence in forming an opinion. The auditor's objective is to test the overall reasonableness of the

estimated cost to complete in the light of the information obtained from those and other available sources.

Income Recognition

The amount and timing of income recognized from contracts depend primarily on the methods and bases used to account for those contracts.[1] The auditor should satisfy himself that contracts are accounted for in accordance with the recommendations in the statement of position, *Accounting for Performance of Construction-Type and Certain Production-Type Contracts,* and that the recommendations are applied consistently to all like contracts and in all periods. To form an opinion on the reasonableness of the amount and timing of income recognized, the auditor should obtain an overview of costs and revenues by contract and should recognize that the audit emphasis should be on the audit of contracts.

The technological complexity or the nature of the contractor's work may require the auditor to consider using the work of independent specialists, such as engineers, architects, and attorneys, to obtain competent evidential matter in various phases of the audit. For example, on some complex contracts, the evaluation of the percentage of completion or the estimated cost to complete may require the use of a specialist. Statement on Auditing Standards no. 11, *Using the Work of a Specialist,* provides guidance in this area.

Anticipated losses on contracts, including contracts on which work has not started, should be recognized in full at the earliest date at which they are determinable. In addition, the contractor should consider the need to recognize other contract costs or revenue adjustments, such as guarantees or warranties, penalties for late completion, bonuses for early completion, unreimbursable costs under cost-plus contracts, and foreseeable losses arising from terminated contracts.

Evaluating the Acceptability of Income Recognition Methods

The auditor should be guided by the recommendations in paragraphs 21 to 42 of the SOP in evaluating the acceptability of a

1. The recommendations, usually stated in terms of contracts, also apply to a group of contracts and a segment of a contract in circumstances in which accounting for contracts on those bases is appropriate.

contractor's basic policy for income recognition. The audit procedures described in this and the preceding chapter are closely interrelated, and together they assist the auditor in satisfying himself in regard to the acceptability of the method of income recognition and the bases of applying that method. The procedures include all those previously discussed (review of contracts; review and evaluation of internal accounting control procedures, particularly costs, and contract revenues; job site visits; and procedures applied in the audit of receivables, liabilities related to contracts, and contract costs) and the procedures discussed in this section on income recognition.

In evaluating the acceptability of the method used by a contractor, the auditor should satisfy himself that the contractor has followed the recommendations in the SOP. The SOP recommends the use of the percentage-of-completion method as the basic accounting policy in circumstances in which reasonably dependable estimates can be made and in which the contracts generally meet the three conditions in paragraph 23 of the SOP. If contracts meet those conditions, a contractor generally is deemed able to make reasonably dependable estimates of contract revenue, contract costs, and the extent of progress toward completion. Normally, estimates in single amounts should be used as the basis of accounting for contracts under the percentage-of-completion method (paragraph 25(*a*) of the SOP). However, estimates based on ranges of amounts or on a breakeven or zero-profit basis are acceptable in circumstances described in paragraphs 25(*b*) and 25(*c*) of the SOP, but only if the use of estimates in single amounts is impractical. The auditor should satisfy himself that those recommendations have been reasonably applied.

Paragraphs 44 to 51 of the SOP discuss the considerations that should underlie the selection of a method of measuring the extent of progress toward completion under the percentage-of-completion method. The auditor should evaluate the methods used by the contractor in accordance with those considerations.

In evaluating the acceptability of the percentage-of-completion method as a contractor's basic accounting policy, as well as the acceptability of the basis used to measure the extent of progress toward completion, the auditor should consider procedures such as the following:

- Reviewing a selected sample of contracts to evaluate whether

the contracts meet the basic conditions in paragraph 23 of the SOP for use of the percentage-of-completion method.

- Obtaining, reviewing, and evaluating documentation of estimates of contract revenues, costs, and the extent of progress toward completion for the selected sample of contracts.
- Consulting, if necessary, with independent engineers or independent architects.
- Obtaining and reviewing a representative sample of completed contracts to evaluate the quality of the contractor's original and periodic estimates of profit on those contracts.
- Obtaining a representation from management on the acceptability of the method.

If the contractor applies the percentage-of-completion method on the basis of estimates in terms of ranges or in terms of zero profit for any contracts, the auditor should obtain separate schedules for contracts accounted for on each of those bases and for contracts initially reported on those bases but changed to the normal basis during the period. For contracts in each of those categories, the auditor should consider procedures such as the following in evaluating the acceptability of those approaches to applying the percentage-of-completion method:

- For a selected sample of such contracts, obtaining documentation from management of the circumstances justifying the approaches.
- Discussing with management personnel and, if necessary, independent architects and engineers the reasonableness of the approaches used for the sample of contracts selected in each category.
- Obtaining representation from management on the circumstances justifying each of the approaches.

Paragraphs 31 to 33 of the SOP recommend the completed-contract method as the basic accounting policy "in circumstances in which financial position and results of operations would not vary materially from those resulting from use of the percentage-of-completion method." The completed-contract method should also be used in circumstances, described in paragraph 32 of the SOP, in which estimates cannot meet the criteria for dependability for use of the percentage-of-completion method or in which inherent

hazards (see paragraphs 26 to 29 of the SOP) make estimates doubtful. In evaluating whether those circumstances exist, the auditor should consider the use of procedures such as the following:

- Reviewing the nature of the contractor's contracts and the period required to perform them.
- Obtaining a schedule of uncompleted contracts at the beginning and end of the period and evaluating whether the volume is significant in relation to the volume of contracts started and completed during the period.
- Estimating the effect of reporting on the percentage-of-completion basis and evaluating whether the results would produce a material difference in financial position or results of operations.

The Percentage-of-Completion Method

The auditor's objective in examining contracts accounted for by the percentage-of-completion method is to determine that the income recognized during the current period is based (1) on the total gross profit projected for the contract on completion and (2) on the work performed to date. The total gross profit expected from each contract is derived from an estimate of the final contract price less the total of contract costs to date and estimated cost to complete. The auditor tests those components in connection with other auditing procedures previously discussed.

The auditor should satisfy himself that, in relation to the nature of the contract, the method selected and used by the contractor to measure progress (such as measures based on architectural or engineering estimates, cost-to-cost, labor hours, machine hours, or units produced) produces a reasonable measurement of the work performed to date. Information obtained from job site visits may be particularly useful in reviewing costs incurred to date when the cost-to-cost method is used. Such information may point out the need to disregard certain costs (such as advance billings by subcontractors, cost of undelivered materials, or cost of uninstalled materials) in order to measure more accurately the work performed to date. Contract billings to customers may signify the percentage of completion if the contract provisions require that billings be associated with various stages of work performed on the contract.

The auditor should examine unbilled contract revenues to determine the reasons that they have not been billed. If such reve-

nues relate to change orders or claims, the auditor should evaluate the collectibility of the change orders or claims.

The Completed-Contract Method

The objectives of the auditor in examining contracts accounted for by the completed-contract method are to determine (1) the proper amount and accounting period for recognition of the profit from completed contracts, (2) the amount of anticipated losses, if any, on uncompleted contracts that should be recognized in the current period, and (3) consistency in application of the method of determining completion.

The auditor should review events, contract costs, and contract billings subsequent to the end of the accounting period to obtain additional assurance that all contract revenues and related costs are included in the period in which the contracts are deemed to be substantially completed for income recognition purposes. A contract may be regarded as substantially completed, as a general rule, if remaining cost and potential risks are not significant in relation to the contract (see paragraph 52 of the SOP).

Combining and Segmenting

Income recognition in a given period may be significantly affected by the combining or segmenting of contracts. In the course of the examination, the auditor may find that contracts have been, or in his opinion should have been, combined or segmented. The auditor should, therefore, evaluate the propriety of combining contracts or, conversely, segmenting components of a contract or a group of contracts in accordance with the criteria in paragraphs 35 to 42 of the SOP. In evaluating the propriety of combining a group of contracts and the propriety of segmenting a contract or a group of contracts, the auditor's major concern should be to obtain assurance that the gross profit on contracts is reported appropriately and consistently in accordance with the criteria in the statement of position. The auditor should consider procedures such as the following:

- Reviewing combined contracts to determine whether they meet the criteria in the statement of position and reviewing a representative sample of other contracts to determine if any other contracts meet those criteria.

- Reviewing contracts or groups of contracts that are reported on a segmented basis to determine whether they meet the criteria in paragraphs 39 to 42 of the SOP and whether the criteria are applied consistently.

Review of Earned Revenue

For significant contracts, the auditor should obtain and review workpaper schedules that summarize contract information from the contractor's books and records together with audit data arising from the audit of contract activity. The schedules are valuable because they permit an orderly analysis of the relationship of costs and revenues on a contract-by-contract basis. Illustrations of such schedules, prepared for fixed-price contracts accounted for by the percentage-of-completion method, are presented in exhibits 3 and 4.

The illustrations are based on the assumption that the contractor determines the stage of completion and adjusts his accounts accordingly. Even so, as demonstrated by the illustrations, the schedules enable the auditor to pinpoint the need for adjustments.

Similar, although less detailed, schedules should also be considered for significant cost-plus contracts in process and for significant contracts closed during the period.

Analysis of Gross Profit Margins

Finally, the auditor should consider analyzing gross profit margins on contracts and investigating and obtaining explanations for contracts with unusually high or low profit margins in the light of present and past experience on similar contracts. The auditor should consider a review of the original estimates of any contracts in question and a comparison of the results on those contracts for the current period with the results of prior periods. Procedures that should also be considered include comparison of profit margins recognized on open contracts with the final results on similar closed contracts and comparison of the final profit on closed contracts with the estimated profit on those contracts in the prior year.

The auditor should consider maintaining a summary of the historical information developed in the analysis for a reference in future examinations.

EXHIBIT 3

XYZ Company, Inc.
Fixed-Price Contracts in Process
Summary of Original and Revised Contract Estimates
As of Balance Sheet Date

Contract Identification	*Original Contract Price*	*Original Estimate of Contract Costs*	*Original Estimate of Gross Profit*		*Net Changes in Contract Price*	*Revised Contract Price*	*Revised Estimate of Contract Costs*			*Revised Estimate of Gross Profit*		*% of Completion Measured by*
			Amount	*%*			*Costs to Date*	*Estimated Costs to Complete*	*Revised Total Costs*	*Amount*	*%*	
	(1)	(2)	(2)	(2)	(3)		(4)	(5)				(6)
A	$100,000	$ 55,000	$45,000	45%	-0-	$100,000	$ 42,000	$ 18,000	$ 60,000	$ 40,000	40%	Cost to cost
B	130,000	110,000	20,000	15.4%	20,000	150,000	80,000	40,000	120,000	30,000	20%	Cu.Yds.Completed
C	175,000	125,000	50,000	28.6%	25,000	200,000	125,000	75,000	200,000	-0-	—	Labor hours
D	250,000	200,000	50,000	20%	150,000	400,000	270,000	330,000	600,000	(200,000)	—	Cost to cost

(1) Per original contract.
(2) Per original bid.
(3) Supported by change orders and/or claims meeting accounting criteria for inclusion.
(4) Per audit of contract costs.
(5) Per audit of estimated costs to complete.
(6) Reviewed for appropriateness and consistency.

EXHIBIT 4

XYZ Company, Inc.
Fixed-Price Contracts in Process
Analysis of Contract Status
As of Balance Sheet Date

	Per Contractor's Books and Records						*Auditor's Adjustments*				*Adjusted Gross Profit*					
Contract Identification	*Contract Billings to Date*	*Costs Incurred to Date*	*% Completed*	*Revenue Earned to Date*	*Gross Profit to Date*		*Revised % Completed*	*Revised Earned Revenue to Date*	*Revenue Adjustments*	*Provision for Projected Loss Adjustments*	*To Date*		*Prior Periods*		*Current Period*	
					Amount	*%*					*Amount*	*%*	*Amount*	*%*	*Amount*	*%*
	(1)	(2)	(3)	(4)			(5)	(6)	(7)	(7)	(8)	(8)	(9)	(9)	(8)	(8)
A	$ 80,000	$ 42,000	70%	$ 80,000	$38,000	47.5%	70%	$ 70,000	($10,000)(A)		$ 28,000	40%	$20,250	45%	$ 7,750	31%
B	82,500	80,000	65%	97,500	17,500	17.9%	67%	100,500	3,000 (B)		20,500	20%	8,500	18.9%	12,000	21.6%
C	150,000	125,000	55%	110,000	(15,000)	—	62.5%	125,000	15,000 (C)		-0-	—	28,600	28.6%	(28,600)	—
D	300,000	270,000	45%	300,000	30,000	10%	45%	180,000	(120,000)(A)	110,000(D)	(200,000)	—	—	—	(200,000)	—

(1) Per audit of contract billings.
(2) Per audit of contract costs.
(3) Management's estimate of completion.
(4) Per contract revenue accounts on books.
(5) Per auditor—based on review and analysis of costs, billings, management's estimate of completion, job-site visits, etc.
(6) Result of applying revised percentage of completion to revised contract price.
(7) Adjustments to be reviewed with and accepted by management.
(8) Should be compared with prior periods and with similar contracts.
(9) Per audit of prior periods.

(A) Adjustment necessary to reduce recorded earned revenue and recognize excess billings.
(B) Adjustment necessary to increase recorded earned revenue and recognize unbilled revenue.
(C) Adjustment necessary to increase recorded earned revenue and reduce recorded excess billings in order to reflect projected "break-even" on contract. Remaining revenue ($75,000) now equals estimated costs to complete.
(D) Adjustment necessary to provide for balance of the total projected loss on contract. Remaining revenue ($220,000) now equals estimated costs to complete ($330,000) less provision for projected loss ($110,000).

Review of Backlog Information on Signed Contracts and Letters of Intent

The accounting section of this guide encourages contractors to present in the basic financial statements backlog information for signed contracts whose cancellation is not expected, and it suggests that contractors may include additional backlog information on letters of intent and a schedule showing backlog at the beginning of the year, new contracts awarded during the year, revenue recognized during the year, and backlog at the end of the year (chapter 6, "Backlog on Existing Contracts"). The presentation of such information would help users of the contractor's financial statements assess the contractor's current level of activity and prospects for maintaining that level of activity in future periods.

Information on signed contracts whose cancellation by the parties is not expected is within the scope of an examination of the contractor's financial statements. If a contractor elects to present backlog information on signed contracts in the basic financial statements, the auditor should review the information and evaluate its completeness in light of other audit procedures for contract receivables, contract-related liabilities, contract costs, and contract revenues. For that purpose the auditor should consider obtaining a schedule of all uncompleted signed contracts showing, for each contract, total estimated revenue, total estimated cost, earned revenue to date, costs incurred to date, and cost of earned revenue.

If a contractor elects to present backlog information for both signed contracts and letters of intent, the auditor's responsibility for the information is less clear because letters of intent are not normally within the scope of the examination of a contractor's financial statements. The auditor may, however, be able to satisfy himself regarding the completeness and reliability of the information on letters of intent. The auditor should consider obtaining a schedule of signed letters of intent, confirming the letters with customers, and reviewing their terms with the contractor's legal counsel.

As indicated in chapter 6 of this guide, the presentation of backlog information by a contractor is desirable only if a reasonably dependable determination of total revenue and a reasonably dependable estimate of total cost under signed contracts or letters of intent can be made, and the information on signed contracts should be segregated from the information on letters of intent.

Client Representations

The auditor should obtain written representations from management in accordance with the requirements of SAS no. 19. Some of the matters on which the auditor should consider obtaining written representations in the examination of the financial statements of a contractor include

- Method of income recognition used.
- Provisions for losses on contracts.
- Unapproved change orders, claims, and contract postponements or cancellations.
- Backlog information if presented in the financial statements.
- Joint venture participations and other related party transactions.

In addition to the foregoing items, the auditor should consider obtaining client representations on all the types of matters suggested in SAS no. 19 that are relevant to the engagement.

Chapter 11

Other Audit Considerations

This chapter addresses additional audit considerations that are essential in audits of construction contractors. They include affiliated entities, capitalization and cash flow, types of auditor's reports, and legal and regulatory requirements.

Affiliated Entities

In the construction industry, contractors frequently participate in joint ventures or have a direct or indirect affiliation with other entities and, as a consequence, are frequently involved in related party transactions (as the term "related parties" is defined in SAS no. 6, *Related Party Transactions*). The prevalence of such arrangements in the industry can be attributed to factors such as legal liability, taxation, competition, ownership and operating arrangements, labor and labor union considerations, and regulatory requirements. Auditing and reporting considerations appropriate in the circumstances are discussed in this section.

Participation in Joint Ventures

The auditor should review a contractor's participations in joint ventures to evaluate whether investments in joint ventures are reported in accordance with the recommendations in chapter 3 of this guide. The following are among the factors that the auditor should consider:

- The method or methods of reporting joint venture investments.
- The nature of capital contributions and the methods of recording capital contributions.

- The timeliness of the available financial statements of joint ventures in relation to those of the reporting investor.
- The appropriateness of the accounting for joint venture losses that exceed a contractor's loans and investments.
- The adequacy of joint-venture-related disclosures in the contractor's financial statements.

The auditor should review joint venture agreements and should document a contractor's participation. For corporate joint ventures, the documentation should consist of information such as the following:

- Capital contributions and funding requirements of the venture participants.
- Ownership percentages.
- Profit or loss participation ratios.
- Duration of the venture.
- Performance requirements of the venture participants.

The audit considerations for a contractor's participation in a partnership (for example, in a real estate tax shelter partnership) are similar to those for participation in corporate joint ventures. They may differ primarily in relation to the contractor's unlimited liability as a general partner for partnership obligations.

For partnership interests, the auditor's documentation should contain information such as the following:

- The extent and nature of fees and other amounts to be paid by the partnership to the contractor and the conditions and events that would require such payments.
- The contractor's obligations to the partnership for capital contributions and other funding.
- Performance and other requirements of the contractor as a general partner and specified penalties for nonperformance, if any.
- Profit participation ratios of the partners and events or conditions that change such ratios.
- The duration of the partnership.

The auditor should assess the economic and tax incentives underlying the creation of the partnership, the events requiring capi-

tal contribution installments by limited partners, and temporary and permanent financing arrangements and related costs. The auditor should also assess the extent of actual and contingent obligations that arise from the contractor's role as a general partner. To that end, the auditor should review the financial condition of the other general partners and their ability to participate in the funding of required capital contributions, partnership obligations, and partnership losses, if any. The inability of other general partners to provide their share of such funding may require the contractor to recognize additional obligations based on the contractor's legal liability as a general partner for all partnership obligations.

For any type of venture, the auditor should consider the nature of the venture, the scope of its operations, and the extent of involvement of each participant, and he should obtain financial statements of the venture entity for the period under review. If the financial statements of the venture are examined by another auditor, the principal auditor should be guided by the provisions of section 543 of SAS no. 1. If the venture's financial statements are unaudited, the principal auditor should perform such procedures as he deems necessary in the circumstances. In selecting such procedures, the auditor should be guided by the provisions of section 332 of SAS no. 1, "Evidential Matter for Long-Term Investments," which furnishes guidance in applying generally accepted auditing standards to examinations of the financial statements of companies with long-term investments accounted for under either the cost method or the equity method. If for any reasons such procedures cannot be performed, the auditor should evaluate the effect of such a scope limitation on the opinion to be expressed on the contractor's financial statements.

Auditing Affiliated Companies and Related Party Transactions

An auditor engaged to examine one of a group of affiliated companies that comprises an economic unit may find that an examination of the records of that entity does not satisfy him in regard to such aspects as substance, nature, business purpose, and transfer prices of significant transactions between the parties. The auditor should be guided by SAS no. 6 in identifying and reporting on related party transactions. The auditor must exercise judgment and take into consideration all pertinent factors in each case. Consolidated or combined financial statements in place of, or supplementary to, the separate financial statements of the entity

being audited may sometimes be necessary to present the financial position, results of operations, and changes in financial position of the entity being audited in accordance with the recommendations in chapter 4 of this guide.

Capitalization and Cash Flow

Contractors often follow practices that accelerate the cash collections to be generated from a contract. The practices include the use of unbalanced bids and other front-end loading procedures that allocate a relatively larger portion of the total contract price to phases of work likely to be completed in early stages of the contract than to phases likely to be completed later. Also, overestimating the percentage of work completed in computing billings on contracts may have a similar effect on cash collections.

If a contractor incurs substantial losses on contracts that have been front-end loaded, a cash deficiency toward the end of those contracts may be experienced. The deficiency may prevent the contractor from meeting current obligations, and the contractor may have to front-end load new contracts to generate funds to meet those obligations. The necessity to generate cash may cause the contractor to accept jobs that are only marginally profitable.

Therefore, the auditor should review uncompleted contracts not only to assess the adequacy of provisions for losses in the current period but also to determine the effect of projected cash receipts and payments on the contractor's cash position and ability to meet current obligations.

Types of Auditor's Reports

In most situations, the auditor, through normal or extended audit procedures, should be able to obtain sufficient competent evidence that a contractor's accounts are presented in accordance with generally accepted accounting principles to issue an unqualified opinion. Normally, the auditor should apply extended audit procedures to resolve reservations that arise in any area of the audit. However, scope limitations or major reservations that cannot be resolved to the auditor's satisfaction by the use of extended audit procedures require the auditor to issue a modified report or to disclaim an opinion as appropriate in the circumstances. The following are examples of situations in which the auditor should consider not issuing a standard report:

- The auditor is unable to evaluate the propriety or collectibility of significant amounts of contract revenue related to claims. Those circumstances may require the auditor to issue a qualified opinion or to disclaim an opinion, depending on the particular circumstances.
- A contractor does not maintain detailed cost records by contract, and the auditor is unable to perform extended auditing procedures to obtain sufficient competent evidence that the data purporting to represent accumulated costs to date are reasonably correct. In this situation, the auditor may be required to issue a modified opinion.
- A company has cash problems because of undercapitalization or because losses have eroded its net worth and threaten its ability to continue to operate as a viable entity. In such a situation, the auditor should consider issuing a qualified report or disclaimer of an opinion, because the "going-concern" basis of presentation may not be appropriate.

Legal and Regulatory Considerations

State Statutes Affecting Construction Contractors

The auditor should be aware of the existence in some states of "lien" laws. Those laws vary from state to state but generally provide that funds received or receivable by a contractor constitute trust funds that may only be used to pay specified contract-related costs. The auditor should review with the contractor and his counsel the applicable statute in each state in which the contractor operates to evaluate whether amounts that constitute trust funds under those statutes have been properly applied. Other state statutes may also have audit or disclosure requirements. The auditor should consider such statutes in the performance of an audit and in the evaluation of the adequacy of financial statement disclosures.

Governmental Prequalification Reporting

Contractors are often required to file reports with agencies of the federal, state, or county governments in order to qualify for bidding on or performing work for such agencies. The report format required by the regulatory agencies frequently includes preprinted auditors' reports, which differ from reports issued in conformity with generally accepted auditing standards. Paragraphs 20 and 21

of SAS no. 14, *Special Reports,* specify the steps an auditor should consider in those circumstances. A suggested form of auditor's report that could be substituted for the preprinted report in the regulatory filing form follows:

> We have examined the statement of assets, liabilities, and surplus of XYZ Company as of December 31, 19XX, and the related statements of income and changes in surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.
>
> As described in Note X, the company's policy is to prepare its financial statements for state construction prequalification filings on the basis of accounting practices prescribed by the state in which filed. These practices differ in some respects from generally accepted accounting principles. Accordingly, the accompanying financial statements are not intended to present financial position and results of operations in conformity with generally accepted accounting principles. This report is intended solely for filing with regulatory agencies and is not intended for any other purposes.
>
> In our opinion, the financial statements referred to above present fairly the financial position of XYZ Company as of December 31, 19XX, and the results of its operations for the year then ended, on the basis of accounting described in Note X, which basis has been applied in a manner consistent with that of the preceding year.
>
> * * * *
>
> **Note X.** It is the policy of the company to prepare financial statements intended solely for a state authority on the basis prescribed by that state authority. This report has been prepared for (*name of state authority*) on the basis prescribed by them. This basis differs from generally accepted accounting principles in the following respects:
>
> 1. A statement of changes in financial position is not included.
> 2. _____
> 3. _____
> 4. _____

Appendixes

APPENDIX I

Statement of Position 81-1

Accounting for Performance of Construction-Type and Certain Production-Type Contracts

July 15, 1981

Proposal to the Financial Accounting Standards Board

Issued by
Accounting Standards Division

American Institute of Certified Public Accountants

AICPA

NOTE

Statements of position of the accounting standards division are issued for the general information of those interested in the subject. They present the conclusions of at least a majority of the accounting standards executive committee, which is the senior technical body of the Institute authorized to speak for the Institute in the areas of financial accounting and reporting and cost accounting.

The objective of statements of position is to influence the development of accounting and reporting standards in directions the division believes are in the public interest. It is intended that they should be considered, as deemed appropriate, by bodies having authority to issue pronouncements on the subject. However, statements of position do not establish standards enforceable under the Institute's code of professional ethics.

Table of Contents

Accounting for Performance of Construction-Type and Certain Production-Type Contracts

Introduction

1. This statement of position provides guidance on the application of generally accepted accounting principles in accounting for the performance of contracts for which specifications are provided by the customer for the construction of facilities or the production of goods or for the provision of related services. Changes in the business environment have increased significantly the variety and uses of those types of contracts and the types of business enterprises that use them. In the present business environment, diverse types of contracts, ranging from relatively simple to highly complex and from relatively short- to long-term, are widely used in many industries for construction, production, or provision of a broad range of goods and services. However, existing principles related to accounting for contracts were written in terms of long-term construction-type contracts, and they are not stated in sufficient detail for the scope of activities to which they presently are applied. Those activities range far beyond the traditional construction-type activity (the design and physical construction of facilities such as buildings, roads, dams, and bridges) to include, for example, the development and production of military and commercial aircraft, weapons delivery systems, space exploration hardware, and computer software. The accounting standards division believes that guidance is now needed in this area of accounting.

The Basic Accounting Issue

2. The determination of the point or points at which revenue should be recognized as earned and costs should be recognized as

expenses is a major accounting issue common to all business enterprises engaged in the performance of contracts of the types covered by this statement. Accounting for such contracts is essentially a process of measuring the results of relatively long-term events and allocating those results to relatively short-term accounting periods. This involves considerable use of estimates in determining revenues, costs, and profits and in assigning the amounts to accounting periods. The process is complicated by the need to evaluate continually the uncertainties inherent in the performance of contracts and by the need to rely on estimates of revenues, costs, and the extent of progress toward completion.

Present Accounting Requirements and Practices

3. The pervasive principle of realization and its exceptions and modifications are central factors underlying accounting for contracts. APB Statement 4 states:

> Revenue is generally recognized when both of the following conditions are met: (1) the earnings process is complete or virtually complete, and (2) an exchange has taken place. [Paragraph 150]
>
> Revenue is sometimes recognized on bases other than the realization rule. For example, on long-term construction contracts revenue may be recognized as construction progresses. This exception to the realization principle is based on the availability of evidence of the ultimate proceeds and the consensus that a better measure of periodic income results. [Paragraph 152]
>
> The exception to the usual revenue realization rule for long-term construction-type contracts, for example, is justified in part because strict adherence to realization at the time of sale would produce results that are considered to be unreasonable. The judgment of the profession is that revenue should be recognized in this situation as construction progresses. [Paragraph 174]

4. Accounting Research Bulletin no. 45 (ARB 45), *Long-Term Construction-Type Contracts*, issued by the AICPA Committee on Accounting Procedure in 1955, describes the two generally accepted methods of accounting for long-term construction-type contracts for financial reporting purposes:

- *The percentage-of-completion method* recognizes income as work on a contract progresses; recognition of revenues and profits generally is related to costs incurred in providing the services required under the contract.

- *The completed-contract method* recognizes income only when the contract is completed, or substantially so, and all costs and related revenues are reported as deferred items in the balance sheet until that time.

The AICPA Industry Audit Guide, *Audits of Government Contractors*, describes units-of-delivery as a modification of the percentage-of-completion method of accounting for contracts.

- *The units-of-delivery method* recognizes as revenue the contract price of units of a basic production product delivered during a period and as the cost of earned revenue the costs allocable to the delivered units; costs allocable to undelivered units are reported in the balance sheet as inventory or work in progress. The method is used in circumstances in which an entity produces units of a basic product under production-type contracts in a continuous or sequential production process to buyers' specifications.

The use of either of the two generally accepted methods of accounting involves, to a greater or lesser extent, three key areas of estimates and uncertainties: (*a*) the extent of progress toward completion, (*b*) contract revenues, and (*c*) contract costs. Although the ultimate amount of contract revenue is often subject to numerous uncertainties, the accounting literature has given little attention to the difficulties of estimating contract revenue.

5. ARB 45, paragraph 15, describes the circumstances in which each method is preferable as follows:

> The committee believes that in general when estimates of costs to complete and extent of progress toward completion of long-term contracts are reasonably dependable, the percentage-of-completion method is preferable. When lack of dependable estimates or inherent hazards cause forecasts to be doubtful, the completed-contract method is preferable.

Both of the two generally accepted methods are widely used in practice. However, the two methods are frequently applied differently in similar circumstances. The division believes that the two methods should be used in specified circumstances and should not be used as acceptable alternatives for the same circumstances. Accordingly, identifying the circumstances in which either of the methods is preferable and the accounting that should be followed in the application of those methods are among the primary objec-

tives of this statement of position. This statement provides guidance on the application of ARB 45 and does not amend that bulletin.

6. In practice, methods are sometimes found that allocate contract costs and revenues to accounting periods on (*a*) the basis of cash receipts and payments or (*b*) the basis of contract billings and costs incurred. Those practices are not generally accepted methods of accounting for financial reporting purposes. However, those methods are appropriate for other purposes, such as the measurement of income for income tax purposes, for which the timing of cash transactions is a controlling factor. Recording the amounts billed or billable on a contract during a period as contract revenue of the period, and the costs incurred on the contract as expenses of the period, is not acceptable for financial reporting purposes because the amounts billed or billable on a contract during a period are determined by contract terms and do not necessarily measure performance on the contract. Only by coincidence might those unacceptable methods produce results that approximate the results of the generally accepted method of accounting for contracts that are appropriate in the circumstances.

Other Pronouncements and Regulations Affecting Contract Accounting

7. Accounting Research Bulletin no. 43, chapter 11, "Government Contracts," prescribes generally accepted principles in three areas of accounting for government contracts. Section A of that chapter deals with accounting problems arising under cost-plus-fixed-fee contracts. Section B deals with certain aspects of the accounting for government contracts and subcontracts that are subject to renegotiation. Section C deals with problems involved in accounting for certain terminated war and defense contracts. Those pronouncements govern accounting for contracts in the areas indicated.

8. The pricing and costing of federal government contracts are governed by cost principles contained in procurement regulations such as the Federal Procurement Regulation (FPR) and the Defense Acquisition Regulation (DAR). Also, most major government contractors are subject to cost accounting standards issued by the Cost Accounting Standards Board (CASB). CASB standards apply

to the cost accounting procedures that government contractors use to allocate costs to contracts; CASB standards are not intended for financial reporting.

9. Accounting for contracts for income tax purposes is prescribed by the Internal Revenue Code and the related rules and regulations. The methods of accounting for contracts under those requirements are not limited to the two generally accepted methods for financial reporting. For numerous historical and practical reasons, tax accounting rules and regulations differ from generally accepted accounting principles. Numerous nonaccounting considerations are appropriate in determining income tax accounting. This statement deals exclusively with the application of generally accepted accounting principles to accounting for contracts in financial reporting. It does not apply to income tax accounting and is not intended to influence income tax accounting.

Need for Guidance

10. Because of the complexities and uncertainties in accounting for contracts, the increased use of diverse types of contracts for the construction of facilities, the production of goods, or the provision of related services, and present conditions and practices in industries in which contracts are performed for those purposes, additional guidance on the application of generally accepted accounting principles is needed. This statement of position provides that guidance. Appendix A contains a schematic chart showing the organization of the statement.

Scope of Statement of Position

11. This statement of position applies to accounting for performance of contracts for which specifications are provided by the customer for the construction of facilities or the production of goods or the provision of related services that are reported in financial statements prepared in conformity with generally accepted accounting principles.[1] Existing authoritative accounting literature

[1]This statement is not intended to apply to "service transactions" as defined in the FASB's October 23, 1978 Invitation to Comment, *Accounting for Certain Service Transactions*. However, it applies to separate contracts to provide services essential to the construction or production of tangible property, such as design, engineering, procurement, and construction management (see paragraph 13 for examples).

uses the terms "long-term" and "construction-type" in identifying the types of contracts that are the primary focus of interest. The term "long-term" is not used in this statement of position as an identifying characteristic because other characteristics are considered more relevant for identifying the types of contracts covered. However, accounting for contracts by an entity that primarily has relatively short-term contracts is recommended in paragraph 31 of this statement. The scope of the statement is not limited to construction-type contracts.

Contracts Covered

12. Contracts covered by this statement of position are binding agreements between buyers and sellers in which the seller agrees, for compensation, to perform a service to the buyer's specifications.[2] Contracts consist of legally enforceable agreements in any form and include amendments, revisions, and extensions of such agreements. Performance will often extend over long periods, and the seller's right to receive payment depends on his performance in accordance with the agreement. The service may consist of designing, engineering, fabricating, constructing, or manufacturing related to the construction or the production of tangible assets. Contracts such as leases and real estate agreements, for which authoritative accounting literature provides special methods of accounting, are not covered by this statement.

13. Contracts covered by this statement include, but are not limited to, the following:

- Contracts in the construction industry, such as those of general building, heavy earth moving, dredging, demolition, design-build contractors, and specialty contractors (for example, mechanical, electrical, or paving).
- Contracts to design and build ships and transport vessels.
- Contracts to design, develop, manufacture, or modify complex aerospace or electronic equipment to a buyer's specification or to provide services related to the performance of such contracts.
- Contracts for construction consulting service, such as under agency contracts or construction management agreements.

[2]Specifications imposed on the buyer by a third party (for example, a government or regulatory agency or a financial institution) or by conditions in the marketplace are deemed to be "buyer's specifications."

- Contracts for services performed by architects, engineers, or architectural or engineering design firms.

14. Contracts not covered by this statement include, but are not limited to, the following:

- Sales by a manufacturer of goods produced in a standard manufacturing operation, even if produced to buyers' specifications, and sold in the ordinary course of business through the manufacturer's regular marketing channels if such sales are normally recognized as revenue in accordance with the realization principle for sales of products and if their costs are accounted for in accordance with generally accepted principles of inventory costing.
- Sales or supply contracts to provide goods from inventory or from homogeneous continuing production over a period of time.
- Contracts included in a program and accounted for under the program method of accounting. For accounting purposes, a program consists of a specified number of units of a basic product expected to be produced over a long period in a continuing production effort under a series of existing and anticipated contracts.[3]
- Service contracts of health clubs, correspondence schools, and similar consumer-oriented organizations that provide their services to their clients over an extended period.
- Magazine subscriptions.
- Contracts of nonprofit organizations to provide benefits to their members over a period of time in return for membership dues.

15. Contracts covered by this statement may be classified into four broad types based on methods of pricing: (*a*) fixed-price or lump-sum contracts, (*b*) cost-type (including cost-plus) contracts, (*c*) time-and-material contracts, and (*d*) unit-price contracts. A fixed-price contract is an agreement to perform all acts under the contract for a stated price. A cost-type contract is an agreement to perform under a contract for a price determined on the basis of a defined relationship to the costs to be incurred, for example, the

[3]The division is preparing a separate statement of position on program accounting, which will provide guidance on the circumstances in which existing and anticipated production-type contracts may be combined for the purpose of accumulating and allocating production costs.

costs of all acts required plus a fee, which may be a fixed amount or a fixed percentage of the costs incurred. A time-and-material contract is an agreement to perform all acts required under the contract for a price based on fixed hourly rates for some measure of the labor hours required (for example, direct labor hours) and the cost of materials. A unit-price contract is an agreement to perform all acts required under the contract for a specified price for each unit of output. Each of the various types of contracts may have incentive, penalty, or other provisions that modify their basic pricing terms. The pricing features of the various types are discussed in greater detail in Appendix B.

Definition of a Contractor

16. The term "contractor" as used in this statement refers to a person or entity that enters into a contract to construct facilities, produce goods, or render services to the specifications of a buyer either as a general or prime contractor, as a subcontractor to a general contractor, or as a construction manager.

Definition of a Profit Center

17. For the purpose of this statement, a "profit center" is the unit for the accumulation of revenues and costs and the measurement of income. For business enterprises engaged in the performance of contracts, the profit center for accounting purposes is usually a single contract; but under some specified circumstances it may be a combination of two or more contracts, a segment of a contract or of a group of combined contracts. This statement of position provides guidance on the selection of the appropriate profit center. The accounting recommendations, usually stated in terms of a single contract, also apply to alternative profit centers in circumstances in which alternative centers are appropriate.

Application and Effect on Existing Audit Guides and SOPs

18. This statement of position presents the division's recommendations on accounting for contracts (as specified in paragraphs 11 to 17) in all industries. The recommendations in this statement need not be applied to immaterial items. Two existing AICPA Industry Audit Guides, *Audits of Construction Contractors* and *Audits of Government Contractors*, provide additional guidance on the application of generally accepted accounting principles to the

construction industry and to government contracts, respectively. The recommendations in this statement take precedence in those areas. *Audits of Construction Contractors* is being revised concurrently with this statement to conform to its provisions.

19. The guidance on contract accounting and financial reporting in *Audits of Government Contractors* is essentially consistent with the recommendations in this statement except that this statement recommends the cumulative catch-up method for accounting for changes in estimates under the percentage-of-completion method of accounting, whereas either the cumulative catch-up method or the reallocation method is acceptable under the guide. Therefore, *Audits of Government Contractors* is amended so that its guidance on accounting for changes in estimates conforms to the recommendations in this statement. Also, since the recommendations in this statement provide more comprehensive and explicit guidance on the application of generally accepted accounting principles to contract accounting than does the guide, *Audits of Government Contractors*, the guide is amended to incorporate this statement as an appendix. The provisions of that guide should be interpreted and applied in the context of the recommendations in this statement.

20. This statement is not intended to supersede recommendations on accounting in other AICPA industry accounting or audit guides or in other statements of position.

The Division's Conclusions

Determining a Basic Accounting Policy for Contracts

21. In accounting for contracts, the basic accounting policy decision is the choice between the two generally accepted methods: the percentage-of-completion method including units of delivery and the completed-contract method. The determination of which of the two methods is preferable should be based on a careful evaluation of circumstances because the two methods should not be acceptable alternatives for the same circumstances. The division's recommendations on basic accounting policy are set forth in the sections on "The Percentage-of-Completion Method" and "The Completed-Contract Method," which identify the circumstances

appropriate to the methods, the bases of applying the methods, and the reasons for the recommendations. The recommendations apply to accounting for individual contracts and to accounting for other profit centers in accordance with the recommendations in the section on "Determining the Profit Center." As a result of evaluating individual contracts and profit centers, a contractor should be able to establish a basic policy that should be followed in accounting for most of his contracts. In accordance with the requirements of APB Opinion 22, *Disclosure of Accounting Policies*, a contractor should disclose in the note to the financial statements on accounting policies the method or methods of determining earned revenue and the cost of earned revenue including the policies relating to combining and segmenting, if applicable. Appendix C contains a summary of the disclosure requirements in this statement.

The Percentage-of-Completion Method

22. This section sets forth the recommended basis for using the percentage-of-completion method and the reasons for the recommendation. Under most contracts for construction of facilities, production of goods, or provision of related services to a buyer's specifications, both the buyer and the seller (contractor) obtain enforceable rights. The legal right of the buyer to require specific performance of the contract means that the contractor has, in effect, agreed to sell his rights to work-in-progress as the work progresses. This view is consistent with the contractor's legal rights; he typically has no ownership claim to the work-in-progress but has lien rights. Furthermore, the contractor has the right to require the buyer, under most financing arrangements, to make progress payments to support his ownership investment and to approve the facilities constructed (or goods produced or services performed) to date if they meet the contract requirements. The buyer's right to take over the work-in-progress at his option (usually with a penalty) provides additional evidence to support that view. Accordingly, the business activity taking place supports the concept that in an economic sense performance is, in effect, a continuous sale (transfer of ownership rights) that occurs as the work progresses. Also under most contracts for the production of goods and the provision of related services that are accounted for on the basis of units delivered, both the contractor and the customer obtain enforceable rights as the goods are produced or the services are performed. As units are delivered, title to and the risk of loss on those units

normally transfer to the customer, whose acceptance of the items indicates that they meet the contractual specifications. For such contracts, delivery and acceptance are objective measurements of the extent to which the contracts have been performed. The percentage-of-completion method recognizes the legal and economic results of contract performance on a timely basis. Financial statements based on the percentage-of-completion method present the economic substance of a company's transactions and events more clearly and more timely than financial statements based on the completed-contract method, and they present more accurately the relationships between gross profit from contracts and related period costs. The percentage-of-completion method informs the users of the general purpose financial statements of the volume of economic activity of a company.

Circumstances Appropriate to the Method

23. The use of the percentage-of-completion method depends on the ability to make reasonably dependable estimates. For the purposes of this statement, "the ability to make reasonably dependable estimates" relates to estimates of the extent of progress toward completion, contract revenues, and contract costs. The division believes that the percentage-of-completion method is preferable as an accounting policy in circumstances in which reasonably dependable estimates can be made and in which all the following conditions exist:

- Contracts executed by the parties normally include provisions that clearly specify the enforceable rights regarding goods or services to be provided and received by the parties, the consideration to be exchanged, and the manner and terms of settlement.
- The buyer can be expected to satisfy his obligations under the contract.
- The contractor can be expected to perform his contractual obligations.

24. For entities engaged on a continuing basis in the production and delivery of goods or services under contractual arrangements and for whom contracting represents a significant part of their operations, the presumption is that they have the ability to make estimates that are sufficiently dependable to justify the use of

the percentage-of-completion method of accounting.[4] Persuasive evidence to the contrary is necessary to overcome that presumption. The ability to produce reasonably dependable estimates is an essential element of the contracting business. For a contract on which a loss is anticipated, generally accepted accounting principles require recognition of the entire anticipated loss as soon as the loss becomes evident. An entity without the ability to update and revise estimates continually with a degree of confidence could not meet that essential requirement of generally accepted accounting principles.

25. Accordingly, the division believes that entities with significant contracting operations generally have the ability to produce reasonably dependable estimates and that for such entities the percentage-of-completion method of accounting is preferable in most circumstances. The method should be applied to individual contracts or profit centers, as appropriate.

a. Normally, a contractor will be able to estimate total contract revenue and total contract cost in single amounts. Those amounts should normally be used as the basis for accounting for contracts under the percentage-of-completion method.

b. For some contracts, on which some level of profit is assured, a contractor may only be able to estimate total contract revenue and total contract cost in ranges of amounts. If, based on the information arising in estimating the ranges of amounts and all other pertinent data, the contractor can determine the amounts in the ranges that are most likely to occur, those amounts should be used in accounting for the contract under the percentage-of-completion method. If the most likely amounts cannot be determined, the lowest probable level of profit in the range should be used in accounting for the contract until the results can be estimated more precisely.

c. However, in some circumstances, estimating the final outcome may be impractical except to assure that no loss will be incurred. In those circumstances, a contractor should use a zero estimate

[4]The division recognizes that many contractors have informal estimating procedures that may result in poorly documented estimates and marginal quality field reporting and job costing systems. Those conditions may influence the ability of an entity to produce reasonably dependable estimates. However, procedures and systems should not influence the development of accounting principles and should be dealt with by management as internal control, financial reporting, and auditing concerns.

of profit; equal amounts of revenue and cost should be recognized until results can be estimated more precisely. A contractor should use this basis only if the bases in (*a*) or (*b*) are clearly not appropriate. A change from a zero estimate of profit to a more precise estimate should be accounted for as a change in an accounting estimate.

An entity using the percentage-of-completion method as its basic accounting policy should use the completed-contract method for a single contract or a group of contracts for which reasonably dependable estimates cannot be made or for which inherent hazards make estimates doubtful. Such a departure from the basic policy should be disclosed.

Nature of Reasonable Estimates and Inherent Hazards

26. In practice, contract revenues and costs are estimated in a wide variety of ways ranging from rudimentary procedures to complex methods and systems. Regardless of the techniques used, a contractor's estimating procedures should provide reasonable assurance of a continuing ability to produce reasonably dependable estimates.[5] Ability to estimate covers more than the estimating and documentation of contract revenues and costs; it covers a contractor's entire contract administration and management control system. The ability to produce reasonably dependable estimates depends on all the procedures and personnel that provide financial or production information on the status of contracts. It encompasses systems and personnel not only of the accounting department but of all areas of the company that participate in production control, cost control, administrative control, or accountability for contracts. Previous reliability of a contractor's estimating process is usually an indication of continuing reliability, particularly if the present circumstances are similar to those that prevailed in the past.

27. Estimating is an integral part of contractors' business activities, and there is a necessity to revise estimates on contracts continually as the work progresses. The fact that circumstances may necessitate frequent revision of estimates does not indicate that the estimates are unreliable for the purpose for which they are

[5]The type of estimating procedures appropriate in a particular set of circumstances depends on a careful evaluation of the costs and benefits of developing the procedures. The ability to produce reasonably dependable estimates that would justify the use of the percentage-of-completion method as recommended in paragraph 25 does not depend on the elaborateness of the estimating procedures used.

used. Although results may differ widely from original estimates because of the nature of the business, the contractor, in the conduct of his business, may still find the estimates reasonably dependable. Despite these widely recognized conditions, a contractor's estimates of total contract revenue and total contract costs should be regarded as reasonably dependable if the minimum total revenue and the maximum total cost can be estimated with a sufficient degree of confidence to justify the contractor's bids on contracts.

28. ARB 45 discourages the use of the percentage-of-completion method of accounting in circumstances in which inherent hazards make estimates doubtful. "Inherent hazards" relate to contract conditions or external factors that raise questions about contract estimates and about the ability of either the contractor or the customer to perform his obligations under the contract. Inherent hazards that may cause contract estimates to be doubtful usually differ from inherent business risks. Business enterprises engaged in contracting, like all business enterprises, are exposed to numerous business risks that vary from contract to contract. The reliability of the estimating process in contract accounting does not depend on the absence of such risks. Assessing business risks is a function of users of financial statements.

29. The present business environment and the refinement of the estimating process have produced conditions under which most business entities engaged in contracting can deal adequately with the normal, recurring business risks in estimating the outcome of contracts. The division believes that inherent hazards that make otherwise reasonably dependable contract estimates doubtful involve events and conditions that would not be considered in the ordinary preparation of contract estimates and that would not be expected to recur frequently, given the contractor's normal business environment. Such hazards are unrelated to, or only incidentally related to, the contractor's typical activities. Such hazards may relate, for example, to contracts whose validity is seriously in question (that is, which are less than fully enforceable), to contracts whose completion may be subject to the outcome of pending legislation or pending litigation, or to contracts exposed to the possibility of the condemnation or expropriation of the resulting properties. Reasonably dependable estimates cannot be produced for a contract with unrealistic or ill-defined terms or for a contract be-

tween unreliable parties. However, the conditions stated in paragraph 23 for the use of the percentage-of-completion method of accounting, which apply to most bona fide contracts, make the existence of some uncertainties, including some of the type described in ARB 45, paragraph 15, unlikely for contracts that meet those conditions. Therefore, the division believes that there should be specific, persuasive evidence of such hazards to indicate that use of the percentage-of-completion method on one of the bases in paragraph 25 is not preferable.

The Completed-Contract Method

30. This section sets forth the recommended basis for using the completed-contract method and the reasons for the recommendation. Under the completed-contract method, income is recognized only when a contract is completed or substantially completed. During the period of performance, billings and costs are accumulated on the balance sheet, but no profit or income is recorded before completion or substantial completion of the work. This method precludes reporting on the performance that is occurring under the enforceable rights of the contract as work progresses. Although the completed-contract method is based on results as finally determined rather than on estimates for unperformed work, which may involve unforeseen costs and possible losses, it does not reflect current performance when the period of a contract extends beyond one accounting period, and it therefore may result in irregular recognition of income. Financial statements based on this method may not show informative relationships between gross profit reported on contracts and related period costs.

Circumstances of Use

31. The completed-contract method may be used as an entity's basic accounting policy in circumstances in which financial position and results of operations would not vary materially from those resulting from use of the percentage-of-completion method (for example, in circumstances in which an entity has primarily short-term contracts). Although this statement does not formally distinguish on the basis of length between long-term and short-term contracts, the basis for recording income on contracts of short duration poses relatively few problems. In accounting for such contracts, income ordinarily is recognized when performance is substantially completed and accepted. Under those circumstances,

revenues and costs in the aggregate for all contracts would be expected to result in a matching of gross profit with period overhead or fixed costs similar to that achieved by use of the percentage-of-completion method. For example, the completed-contract method, as opposed to the percentage-of-completion method, would not usually produce a material difference in net income or financial position for a small plumbing contractor that performs primarily relatively short-term contracts during an accounting period; performance covers such a short span of time that the work is somewhat analogous to the manufacture of shelf production items for sale. An entity using the completed-contract method as its basic accounting policy should depart from that policy for a single contract or a group of contracts not having the features described in paragraph 31 and use the percentage-of-completion method on one of the bases described in paragraph 25. Such a departure should be disclosed.

32. The completed-contract method is preferable in circumstances in which estimates cannot meet the criteria for reasonable dependability discussed in the section on the percentage-of-completion method or in which there are inherent hazards of the nature of those discussed in that section. An entity using the percentage-of-completion method as its basic accounting policy should depart from that policy and use the completed-contract method for a single contract or a group of contracts only in the circumstances described in paragraph 25.

33. The use of the completed-contract method is recommended for the circumstances described in paragraphs 31 and 32. However, for circumstances in which there is an assurance that no loss will be incurred on a contract (for example, when the scope of the contract is ill-defined but the contractor is protected by a cost-plus contract or other contractual terms), the percentage-of-completion method based on a zero profit margin, rather than the completed-contract method, is recommended until more precise estimates can be made. The significant difference between the percentage-of-completion method applied on the basis of a zero profit margin and the completed-contract method relates to the effects on the income statement. Under the zero profit margin approach to applying the percentage-of-completion method, equal amounts of revenue and cost, measured on the basis of performance during the period, are presented in the income statement;

whereas, under the completed-contract method, performance for a period is not reflected in the income statement, and no amount is presented in the income statement until the contract is completed. The zero profit margin approach to applying the percentage-of-completion method gives users of general purpose financial statements an indication of the volume of a company's business and of the application of its economic resources.

Determining the Profit Center

34. The basic presumption should be that each contract is the profit center for revenue recognition, cost accumulation, and income measurement. That presumption may be overcome only if a contract or a series of contracts meets the conditions described for combining or segmenting contracts. A group of contracts (combining), and a phase or segment of a single contract or of a group of contracts (segmenting) may be used as a profit center in some circumstances. Since there are numerous practical implications of combining and segmenting contracts, evaluation of the circumstances, contract terms, and management intent are essential in determining contracts that may be accounted for on those bases.

Combining Contracts

35. A group of contracts may be so closely related that they are, in effect, parts of a single project with an overall profit margin, and accounting for the contracts individually may not be feasible or appropriate. Under those circumstances, consideration should be given to combining such contracts for profit recognition purposes. The presumption in combining contracts is that revenue and profit are earned, and should be reported, uniformly over the performance of the combined contracts. For example, a group of construction-type contracts may be negotiated as a package with the objective of achieving an overall profit margin, although the profit margins on the individual contracts may vary. In those circumstances, if the individual contracts are performed and reported in different periods and accounted for separately, the reported profit margins in those periods will differ from the profit margin contemplated in the negotiations for reasons other than differences in performance.

36. Contracts may be combined for accounting purposes only if they meet the criteria in paragraphs 37 and 38.

37. A group of contracts may be combined for accounting purposes if the contracts

a. Are negotiated as a package in the same economic environment with an overall profit margin objective. Contracts not executed at the same time may be considered to have been negotiated as a package in the same economic environment only if the time period between the commitments of the parties to the individual contracts is reasonably short. The longer the period between the commitments of the parties to the contracts, the more likely it is that the economic circumstances affecting the negotiations have changed.

b. Constitute in essence an agreement to do a single project. A project for this purpose consists of construction, or related service activity with different elements, phases, or units of output that are closely interrelated or interdependent in terms of their design, technology, and function or their ultimate purpose or use.

c. Require closely interrelated construction activities with substantial common costs that cannot be separately identified with, or reasonably allocated to, the elements, phases, or units of output.

d. Are performed concurrently or in a continuous sequence under the same project management at the same location or at different locations in the same general vicinity.

e. Constitute in substance an agreement with a single customer. In assessing whether the contracts meet this criterion, the facts and circumstances relating to the other criteria should be considered. In some circumstances different divisions of the same entity would not constitute a single customer if, for example, the negotiations are conducted independently with the different divisions. On the other hand, two or more parties may constitute in substance a single customer if, for example, the negotiations are conducted jointly with the parties to do what in essence is a single project.

Contracts that meet all of these criteria may be combined for profit recognition and for determining the need for a provision for losses in accordance with ARB 45, paragraph 6. The criteria should be applied consistently to contracts with similar characteristics in similar circumstances.

38. Production-type contracts that do not meet the criteria in paragraph 37 or segments of such contracts may be combined into groupings such as production lots or releases for the purpose of accumulating and allocating production costs to units produced or delivered on the basis of average unit costs in the following circumstances:[6]

a. The contracts are with one or more customers for the production of substantially identical units of a basic item produced concurrently or sequentially.

b. Revenue on the contracts is recognized on the units-of-delivery basis of applying the percentage-of-completion method.

Segmenting a Contract

39. A single contract or a group of contracts that otherwise meet the test for combining may include several elements or phases, each of which the contractor negotiated separately with the same customer and agreed to perform without regard to the performance of the others. If those activities are accounted for as a single profit center, the reported income may differ from that contemplated in the negotiations for reasons other than differences in performance. If the project is segmented, revenues can be assigned to the different elements or phases to achieve different rates of profitability based on the relative value of each element or phase to the estimated total contract revenue. A project, which may consist of a single contract or a group of contracts, with segments that have different rates of profitability may be segmented if it meets the criteria in paragraph 40, paragraph 41, or paragraph 42. The criteria for segmenting should be applied consistently to contracts with similar characteristics and in similar circumstances.

40. A project may be segmented if all the following steps were taken and are documented and verifiable:

a. The contractor submitted bona fide proposals on the separate components of the project and on the entire project.

b. The customer had the right to accept the proposals on either basis.

[6]The division is preparing a separate statement of position on program accounting, which will provide guidance on the circumstances in which existing and anticipated production-type contracts may be combined for the purpose of accumulating and allocating production costs.

c. The aggregate amount of the proposals on the separate components approximated the amount of the proposal on the entire project.

41. A project that does not meet the criteria in paragraph 40 may be segmented only if it meets all the following criteria:

a. The terms and scope of the contract or project clearly call for separable phases or elements.

b. The separable phases or elements of the project are often bid or negotiated separately.

c. The market assigns different gross profit rates to the segments because of factors such as different levels of risk or differences in the relationship of the supply and demand for the services provided in different segments.

d. The contractor has a significant history of providing similar services to other customers under separate contracts for each significant segment to which a profit margin higher than the overall profit margin on the project is ascribed.[7]

e. The significant history with customers who have contracted for services separately is one that is relatively stable in terms of pricing policy rather than one unduly weighted by erratic pricing decisions (responding, for example, to extraordinary economic circumstances or to unique customer-contractor relationships).

f. The excess of the sum of the prices of the separate elements over the price of the total project is clearly attributable to cost savings incident to combined performance of the contract obligations (for example, cost savings in supervision, overhead, or equipment mobilization). Unless this condition is met, segmenting a contract with a price substantially less than the sum of the prices of the separate phases or elements would be inappropriate even if the other conditions are met. Acceptable price variations should be allocated to the separate phases or elements in proportion to the prices ascribed to each. In all other situations a substantial difference in price (whether more or less) between

[7]In applying the criterion in paragraph 41(*d*), values assignable to the segments should be on the basis of the contractor's normal historical prices and terms of such services to other customers. The division considered but rejected the concept of allowing a contractor to segment on the basis of prices charged by other contractors, since it does not follow that those prices could have been obtained by a contractor who has no history in the market.

the separate elements and the price of the total project is evidence that the contractor has accepted different profit margins. Accordingly, segmenting is not appropriate, and the contracts should be the profit centers.

g. The similarity of services and prices in the contract segments and services and the prices of such services to other customers contracted separately should be documented and verifiable.

42. A production-type contract that does not meet the criteria in paragraphs 40 or 41 may also be segmented and included in groupings such as production lots or releases for the purpose of accumulating and allocating production costs to units produced or delivered on the basis of average unit cost under the conditions specified in paragraph 38.

Measuring Progress on Contracts

43. This section describes methods of measuring the extent of progress toward completion under the percentage-of-completion method and sets forth criteria for selecting those methods and for determining when a contract is substantially completed. Meaningful measurement of the extent of progress toward completion is essential since this factor is used in determining the amounts of estimated contract revenue and estimated gross profit that will be recognized as earned in any given period.

Methods of Measuring Extent of Progress Toward Completion

44. In practice, a number of methods are used to measure the extent of progress toward completion. They include the cost-to-cost method, variations of the cost-to-cost method, efforts-expended methods, the units-of-delivery method, and the units-of-work-performed method. Those practices are intended to conform to ARB 45, paragraph 4.[8] Some of the measures are sometimes made and certified by engineers or architects, but manage-

[8]ARB 45, paragraph 4, states:
The committee recommends that the recognized income [under the percentage-of-completion method] be that percentage of estimated total income, either:
(*a*) that incurred costs to date bear to estimated total costs after giving effect to estimates of costs to complete based upon most recent information, or
(*b*) that may be indicated by such other measure of progress toward completion as may be appropriate having due regard to work performed.
Costs as here used might exclude, especially during the early stages of a contract, all or a portion of the cost of such items as materials and subcontracts if it appears that such an exclusion would result in a more meaningful periodic allocation of income.

ment should review and understand the procedures used by those professionals.

45. Some methods used in practice measure progress toward completion in terms of costs, some in terms of units of work, and some in terms of values added (the contract value of total work performed to date). All three of these measures of progress are acceptable in appropriate circumstances. The division concluded that other methods that achieve the objective of measuring extent of progress toward completion in terms of costs, units, or value added are also acceptable in appropriate circumstances. However, the method or methods selected should be applied consistently to all contracts having similar characteristics. The method or methods of measuring extent of progress toward completion should be disclosed in the notes to the financial statements. Examples of circumstances not appropriate to some methods are given within the discussion of input and output measures.

Input and Output Measures

46. The several approaches to measuring progress on a contract can be grouped into input and output measures. Input measures are made in terms of efforts devoted to a contract. They include the methods based on costs and on efforts expended. Output measures are made in terms of results achieved. They include methods based on units produced, units delivered, contract milestones, and value added. For contracts under which separate units of output are produced, progress can be measured on the basis of units of work completed. In other circumstances, progress may be measured, for example, on the basis of cubic yards of excavation for foundation contracts or on the basis of cubic yards of pavement laid for highway contracts.

47. Both input and output measures have drawbacks in some circumstances. Input is used to measure progress toward completion indirectly, based on an established or assumed relationship between a unit of input and productivity. A significant drawback of input measures is that the relationship of the measures to productivity may not hold, because of inefficiencies or other factors. Output is used to measure results directly and is generally the best measure of progress toward completion in circumstances in which a reliable measure of output can be established. However, output

measures often cannot be established, and input measures must then be used. The use of either type of measure requires the exercise of judgment and the careful tailoring of the measure to the circumstances.

48. The efforts-expended method is an input method based on a measure of the work, such as labor hours, labor dollars, machine hours, or material quantities. Under the labor-hours method, for example, extent of progress is measured by the ratio of hours performed to date to estimated total hours at completion. Estimated total labor hours should include (*a*) the estimated labor hours of the contractor and (*b*) the estimated labor hours of subcontractors engaged to perform work for the project, if labor hours of subcontractors are a significant element in the performance of the contract. A labor-hours method can measure the extent of progress in terms of efforts expended only if substantial efforts of subcontractors are included in the computation. If the contractor is unable to obtain reasonably dependable estimates of subcontractors' labor hours at the beginning of the project and as work progresses, he should not use the labor-hours method.

49. The various forms of the efforts-expended method generally are based on the assumption that profits on contracts are derived from the contractor's efforts in all phases of operations, such as designing, procurement, and management. Profit is not assumed to accrue merely as a result of the acquisition of material or other tangible items used in the performance of the contract or the awarding of subcontracts. As previously noted, a significant drawback of efforts-expended methods is that the efforts included in the measure may not all be productive.

50. Measuring progress toward completion based on the ratio of costs incurred to total estimated costs is also an input method. Some of the costs incurred, particularly in the early stages of the contract, should be disregarded in applying this method because they do not relate to contract performance. These include the costs of items such as uninstalled materials not specifically produced or fabricated for the project or of subcontracts that have not been performed. For example, for construction projects, the cost of materials not unique to the project that have been purchased or ac-

cumulated at job sites but that have not been physically installed do not relate to performance.[9] The costs of such materials should be excluded from costs incurred for the purpose of measuring the extent of progress toward completion. Also, the cost of equipment purchased for use on a contract should be allocated over the period of its expected use unless title to the equipment is transferred to the customer by terms of the contract. For production-type contracts, the complement of expensive components (for example, computers, engines, radars, and complex "black boxes") to be installed into the deliverable items may aggregate a significant portion of the total cost of the contract. In some circumstances, the costs incurred for such components, even though the components were specifically purchased for the project, should not be included in the measurement before the components are installed if inclusion would tend to overstate the percentage of completion otherwise determinable.

51. The acceptability of the results of input or output measures deemed to be appropriate to the circumstances should be periodically reviewed and confirmed by alternative measures that involve observation and inspection. For example, the results provided by the measure used to determine the extent of progress may be compared to the results of calculations based on physical observations by engineers, architects, or similarly qualified personnel. That type of review provides assurance somewhat similar to that provided for perpetual inventory records by periodic physical inventory counts.

Completion Criteria Under the Completed-Contract Method

52. As a general rule, a contract may be regarded as substantially completed if remaining costs and potential risks are insignificant in amount. The overriding objectives are to maintain consistency in determining when contracts are substantially completed and to avoid arbitrary acceleration or deferral of income. The specific criteria used to determine when a contract is substantially completed should be followed consistently and should be disclosed in the note to the financial statements on accounting policies. Circumstances to be considered in determining when a project is

[9]The cost of uninstalled materials specifically produced, fabricated, or constructed for a project should be included in the costs used to measure extent of progress. Such materials consist of items unique to a project that a manufacturer or supplier does not carry in inventory and that must be produced or altered to meet the specifications of the project.

substantially completed include, for example, delivery of the product, acceptance by the customer, departure from the site, and compliance with performance specifications.

Income Determination—Revenue Elements

53. Estimating the revenue on a contract is an involved process, which is affected by a variety of uncertainties that depend on the outcome of a series of future events. The estimates must be periodically revised throughout the life of the contract as events occur and as uncertainties are resolved.

54. The major factors that must be considered in determining total estimated revenue include the basic contract price, contract options, change orders, claims, and contract provisions for penalties and incentive payments, including award fees and performance incentives. All those factors and other special contract provisions must be evaluated throughout the life of a contract in estimating total contract revenue to recognize revenues in the periods in which they are earned under the percentage-of-completion method of accounting.

Basic Contract Price—General

55. The estimated revenue from a contract is the total amount that a contractor expects to realize from the contract. It is determined primarily by the terms of the contract and the basic contract price. Contract price may be relatively fixed or highly variable and subject to a great deal of uncertainty, depending on the type of contract involved. Appendix B describes basic contract types and major variations in the basic types. The total amount of revenue that ultimately will be realized on a contract is often subject to a variety of changing circumstances and accordingly may not be known with certainty until the parties to the contract have fully performed their obligations. Thus, the determination of total estimated revenue requires careful consideration and the exercise of judgment in assessing the probabilities of future outcomes.

56. Although fixed-price contracts usually provide for a stated contract price, a specified scope of the work to be performed, and a specified performance schedule, they sometimes have adjustment schedules based on application of economic price adjustment (esca-

lation), price redetermination, incentive, penalty, and other pricing provisions. Determining contract revenue under unit-price contracts generally involves the same factors as under fixed-price contracts. Determining contract revenue from a time-and-material contract requires a careful analysis of the contract, particularly if the contract includes guaranteed maximums or assigns markups to both labor and materials; and the determination involves consideration of some of the factors discussed below in regard to cost-type contracts.

Basic Contract Price—Cost-Type Contracts

57. Cost-type contracts have a variety of forms (see Appendix B). The various forms have differing contract terms that affect accounting, such as provisions for reimbursable costs (which are generally spelled out in the contract), overhead recovery percentages, and fees. A fee may be a fixed amount or a percentage of reimbursable costs or an amount based on performance criteria.[10] Generally, percentage fees may be accrued as the related costs are incurred, since they are a percentage of costs incurred, and profits should therefore be recognized as costs are incurred. Cost-type contracts often include provisions for guaranteed maximum total reimbursable costs or target penalties and rewards relating to underruns and overruns of predetermined target prices, completion dates, plant capacity on completion of the project, or other criteria.

58. One problem peculiar to cost-type contracts involves the determination of the amounts of reimbursable costs that should be reflected as revenue. Under some contracts, particularly service-type contracts, a contractor acts solely in the capacity of an agent (construction manager) and has no risks associated with costs managed. This relationship may arise, for example, if an owner awards a construction management contract to one entity and a construction contract to another. If the contractor, serving as the construction manager, acts solely as an agent, his revenue should include only the fee and should exclude subcontracts negotiated or managed on behalf of the owner and materials purchased on behalf of the owner.

59. In other circumstances, a contractor acts as an ordinary

[10]Cost-type government contracts with fees based on a percentage of cost are no longer granted under government regulations.

principal under a cost-type contract. For example, the contractor may be responsible to employees for salaries and wages and to subcontractors and other creditors for materials and services, and he may have the discretionary responsibility to procure and manage the resources in performing the contract. The contractor should include in revenue all reimbursable costs for which he has risk or on which his fee was based at the time of bid or negotiation. In addition, revenue from overhead percentage recoveries and the earned fee should be included in revenue.

Customer-Furnished Materials

60. Another concern associated with measuring revenue relates to materials furnished by a customer or purchased by the contractor as an agent for the customer. Often, particularly for large, complex projects, customers may be more capable of carrying out the procurement function or may have more leverage with suppliers than the contractor. In those circumstances, the contractor generally informs the customer of the nature, type, and characteristics or specifications of the materials required and may even purchase the required materials and pay for them, using customer purchase orders and checks drawn against the customer's bank account. If the contractor is responsible for the nature, type, characteristics, or specifications of material that the customer furnishes or that the contractor purchases as an agent of the customer, or if the contractor is responsible for the ultimate acceptability of performance of the project based on such material, the value of those items should be included as contract price and reflected as revenue and costs in periodic reporting of operations. As a general rule, revenues and costs should include all items for which the contractor has an associated risk, including items on which his contractual fee was based.

Change Orders

61. Change orders are modifications of an original contract that effectively change the provisions of the contract without adding new provisions. They may be initiated by either the contractor or the customer, and they include changes in specifications or design, method or manner of performance, facilities, equipment, materials, site, and period for completion of the work. Many change orders are unpriced; that is, the work to be performed is defined, but the adjustment to the contract price is to be negotiated later. For some change orders, both scope and price may be unapproved

or in dispute. Accounting for change orders depends on the underlying circumstances, which may differ for each change order depending on the customer, the contract, and the nature of the change. Change orders should therefore be evaluated according to their characteristics and the circumstances in which they occur. In some circumstances, change orders as a normal element of a contract may be numerous, and separate identification may be impractical. Such change orders may be evaluated statistically on a composite basis using historical results as modified by current conditions. If such change orders are considered by the parties to be a normal element within the original scope of the contract, no change in the contract price is required. Otherwise, the adjustment to the contract price may be routinely negotiated. Contract revenue and costs should be adjusted to reflect change orders approved by the customer and the contractor regarding both scope and price.

62. Accounting for unpriced change orders depends on their characteristics and the circumstances in which they occur. Under the completed-contract method, costs attributable to unpriced change orders should be deferred as contract costs if it is probable that aggregate contract costs, including costs attributable to change orders, will be recovered from contract revenues. For all unpriced change orders, recovery should be deemed probable if the future event or events necessary for recovery are likely to occur. Some of the factors to consider in evaluating whether recovery is probable are the customer's written approval of the scope of the change order, separate documentation for change order costs that are identifiable and reasonable, and the entity's favorable experience in negotiating change orders, especially as it relates to the specific type of contract and change order being evaluated. The following guidelines should be followed in accounting for unpriced change orders under the percentage-of-completion method.

a. Costs attributable to unpriced change orders should be treated as costs of contract performance in the period in which the costs are incurred if it is *not* probable that the costs will be recovered through a change in the contract price.

b. If it is probable that the costs will be recovered through a change in the contract price, the costs should be deferred (excluded from the cost of contract performance) until the parties have agreed on the change in contract price, or, alternatively, they

should be treated as costs of contract performance in the period in which they are incurred, and contract revenue should be recognized to the extent of the costs incurred.

c. If it is probable that the contract price will be adjusted by an amount that exceeds the costs attributable to the change order and the amount of the excess can be reliably estimated, the original contract price should also be adjusted for that amount when the costs are recognized as costs of contract performance if its realization is probable. However, since the substantiation of the amount of future revenue is difficult, revenue in excess of the costs attributable to unpriced change orders should only be recorded in circumstances in which realization is assured beyond a reasonable doubt, such as circumstances in which an entity's historical experience provides such assurance or in which an entity has received a bona fide pricing offer from a customer and records only the amount of the offer as revenue.

63. If change orders are in dispute or are unapproved in regard to both scope and price, they should be evaluated as claims (see paragraphs 65 to 67).

Contract Options and Additions

64. An option or an addition to an existing contract should be treated as a separate contract in any of the following circumstances:

a. The product or service to be provided differs significantly from the product or service provided under the original contract.

b. The price of the new product or service is negotiated without regard to the original contract and involves different economic judgments.

c. The products or services to be provided under the exercised option or amendment are similar to those under the original contract, but the contract price and anticipated contract cost relationship are significantly different.

If an option or addition to an existing contract does not meet any of the above conditions, it may be combined with the original contract if it meets the criteria in paragraph 37 or 38. Exercised options or additions that do not meet the criteria for treatment as separate contracts or for combining with the original contracts should be treated as change orders on the original contracts.

Claims

65. Claims are amounts in excess of the agreed contract price (or amounts not included in the original contract price) that a contractor seeks to collect from customers or others for customer-caused delays, errors in specifications and designs, contract terminations, change orders in dispute or unapproved as to both scope and price, or other causes of unanticipated additional costs. Recognition of amounts of additional contract revenue relating to claims is appropriate only if it is probable that the claim will result in additional contract revenue and if the amount can be reliably estimated. Those two requirements are satisfied by the existence of all the following conditions:

a. The contract or other evidence provides a legal basis for the claim; or a legal opinion has been obtained, stating that under the circumstances there is a reasonable basis to support the claim.

b. Additional costs are caused by circumstances that were unforeseen at the contract date and are not the result of deficiencies in the contractor's performance.

c. Costs associated with the claim are identifiable or otherwise determinable and are reasonable in view of the work performed.

d. The evidence supporting the claim is objective and verifiable, not based on management's "feel" for the situation or on unsupported representations.

If the foregoing requirements are met, revenue from a claim should be recorded only to the extent that contract costs relating to the claim have been incurred. The amounts recorded, if material, should be disclosed in the notes to the financial statements. Costs attributable to claims should be treated as costs of contract performance as incurred.

66. However, a practice such as recording revenues from claims only when the amounts have been received or awarded may be used. If that practice is followed, the amounts should be disclosed in the notes to the financial statements.

67. If the requirements in paragraph 65 are not met or if those requirements are met but the claim exceeds the recorded contract costs, a contingent asset should be disclosed in accordance with FASB Statement no. 5, paragraph 17.

Income Determination—Cost Elements

68. Contract costs must be identified, estimated, and accumulated with a reasonable degree of accuracy in determining income earned. At any time during the life of a contract, total estimated contract cost consists of two components: costs incurred to date and estimated cost to complete the contract. A company should be able to determine costs incurred on a contract with a relatively high degree of precision, depending on the adequacy and effectiveness of its cost accounting system. The procedures or systems used in accounting for costs vary from relatively simple, manual procedures that produce relatively modest amounts of detailed analysis to sophisticated, computer-based systems that produce a great deal of detailed analysis. Despite the diversity of systems and procedures, however, an objective of each system or of each set of procedures should be to accumulate costs properly and consistently by contract with a sufficient degree of accuracy to assure a basis for the satisfactory measurement of earnings.

Contract Costs

69. Contract costs are accumulated in the same manner as inventory costs and are charged to operations as the related revenue from contracts is recognized. Contract costs generally include all direct costs, such as materials, direct labor, and subcontracts, and indirect costs identifiable with or allocable to the contracts. However, practice varies for certain types of indirect costs considered allocable to contracts, for example, support costs (such as central preparation and processing of job payrolls, billing and collection costs, and bidding and estimating costs).

70. Authoritative accounting pronouncements require costs to be considered period costs if they cannot be clearly related to production, either directly or by an allocation based on their discernible future benefits.

71. Income is recognized over the term of the contract under the percentage-of-completion method or is recognized as units are delivered under the units-of-delivery modification and is deferred until performance is substantially complete under the completed-contract method. None of the characteristics peculiar to those methods, however, require accounting for contract costs to deviate in principle from the basic framework established in existing authoritative literature applicable to inventories or business enterprises in general.

72. A contracting entity should apply the following general principles in accounting for costs of construction-type and those production-type contracts covered by this statement. The principles are consistent with generally accepted accounting principles for inventory and production costs in other areas, and their application requires the exercise of judgment.

a. All direct costs, such as material, labor, and subcontracting costs, should be included in contract costs.

b. Indirect costs allocable to contracts include the costs of indirect labor, contract supervision, tools and equipment, supplies, quality control and inspection, insurance, repairs and maintenance, depreciation and amortization, and, in some circumstances, support costs, such as central preparation and processing of payrolls. For government contractors, other types of costs that are allowable or allocable under pertinent government contract regulations may be allocated to contracts as indirect costs if otherwise allowable under GAAP.[11] Methods of allocating indirect costs should be systematic and rational. They include, for example, allocations based on direct labor costs, direct labor hours, or a combination of direct labor and material costs. The appropriateness of allocations of indirect costs and of the methods of allocation depend on the circumstances and involve judgment.

c. General and administrative costs ordinarily should be charged to expense as incurred but may be accounted for as contract costs under the completed-contract method of accounting[12] or, in some circumstances, as indirect contract costs by government contractors.[13]

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[11]The AICPA industry audit guide, *Audits of Government Contractors*, states, "Practice varies among government contractors as to the extent to which costs are included in inventory. Some contractors include all direct costs and only certain indirect costs. . . . Other contractors record in inventory accounts all costs identified with the contract including allocated general and administrative . . . expenses." The guide points out that many accountants believe that the practice of allocating general and administrative expenses to contract costs, which is permitted under the completed-contract method by ARB 45, paragraph 10, may appropriately be extended to government contracts because they believe that "all costs under the contract are directly associated with the contract revenue, and both should be recognized in the same period."

[12]Paragraph 10 of ARB 45, *Long-Term Construction-Type Contracts*, states

> When the completed-contract method is used, it may be appropriate to allocate general and administrative expenses to contract costs rather than to periodic income. This may result in a better matching of costs and revenues than would result from treating such expenses as period cost, particularly in years when no contracts were completed.

[13]See the discussion of the AICPA industry audit guide, *Audits of Government Contractors*, in footnote 11.

d. Selling costs should be excluded from contract costs and charged to expense as incurred unless they meet the criteria for precontract costs in paragraph 75.

e. Costs under cost-type contracts should be charged to contract costs in conformity with generally accepted accounting principles in the same manner as costs under other types of contracts because unrealistic profit margins may result in circumstances in which reimbursable cost accumulations omit substantial contract costs (with a resulting larger fee) or include substantial unallocable general and administrative costs (with a resulting smaller fee).

f. In computing estimated gross profit or providing for losses on contracts, estimates of cost to complete should reflect all of the types of costs included in contract costs.

g. Inventoriable costs should not be carried at amounts that when added to the estimated cost to complete are greater than the estimated realizable value of the related contracts.

Interest costs should be accounted for in accordance with FASB Statement no. 34, *Capitalization of Interest Cost.*

Precontract Costs

73. In practice, costs are deferred in anticipation of future contract sales in a variety of circumstances. The costs may consist of (*a*) costs incurred in anticipation of a specific contract that will result in no future benefit unless the contract is obtained (such as the costs of mobilization, engineering, architectural, or other services incurred on the basis of commitments or other indications of interest in negotiating a contract), (*b*) costs incurred for assets to be used in connection with specific anticipated contracts (for example, costs for the purchase of production equipment, materials, or supplies), (*c*) costs incurred to acquire or produce goods in excess of the amounts required under a contract in anticipation of future orders for the same item, and (*d*) learning, start-up, or mobilization costs incurred for anticipated but unidentified contracts.

74. Learning or start-up costs are sometimes incurred in connection with the performance of a contract or a group of contracts. In some circumstances, follow-on or future contracts for the same goods or services are anticipated. Such costs usually consist of labor, overhead, rework, or other special costs that must be in-

curred to complete the existing contract or contracts in progress and are distinguished from research and development costs.[14] A direct relationship between such costs and the anticipated future contracts is often difficult to establish, and the receipt of future contracts often cannot reasonably be anticipated.

75. The division recommends the following accounting for precontract costs:

a. Costs that are incurred for a specific anticipated contract and that will result in no future benefits unless the contract is obtained should not be included in contract costs or inventory before the receipt of the contract. However, such costs may be otherwise deferred, subject to evaluation of their probable recoverability, but only if the costs can be directly associated with a specific anticipated contract and if their recoverability from that contract is probable.

b. Costs incurred for assets, such as costs for the purchase of materials, production equipment, or supplies, that are expected to be used in connection with anticipated contracts may be deferred outside the contract cost or inventory classification if their recovery from future contract revenue or from other dispositions of the assets is probable.

c. Costs incurred to acquire or produce goods in excess of the amounts required for an existing contract in anticipation of future orders for the same items may be treated as inventory if their recovery is probable.

d. Learning or start-up costs incurred in connection with existing contracts and in anticipation of follow-on or future contracts for the same goods or services should be charged to existing contracts.[15]

e. Costs appropriately deferred in anticipation of a contract should be included in contract costs on the receipt of the anticipated contract.

f. Costs related to anticipated contracts that are charged to expenses as incurred because their recovery is not considered

[14]Statement of Financial Accounting Standards no. 2, *Accounting for Research and Development Costs*, requires that research and development costs be charged to expense when incurred.

[15]See footnote 3, which indicates that the division is preparing a statement of position on program accounting for consideration by the FASB.

probable should not be reinstated by a credit to income on the subsequent receipt of the contract.

Cost Adjustments Arising from Back Charges

76. Back charges are billings for work performed or costs incurred by one party that, in accordance with the agreement, should have been performed or incurred by the party to whom billed. These frequently are disputed items. For example, owners bill back charges to general contractors, and general contractors bill back charges to subcontractors. Examples of back charges include charges for cleanup work and charges for a subcontractor's use of a general contractor's equipment.

77. A common practice is to net back charges in the estimating process. The division recommends the following procedures in accounting for back charges:

- Back charges to others should be recorded as receivables and, to the extent considered collectible, should be applied to reduce contract costs. However, if the billed party disputes the propriety or amount of the charge, the back charge is in effect a claim, and the criteria for recording claims apply.
- Back charges from others should be recorded as payables and as additional contract costs to the extent that it is probable that the amounts will be paid.

Estimated Cost to Complete

78. The estimated cost to complete, the other component of total estimated contract cost, is a significant variable in the process of determining income earned and is thus a significant factor in accounting for contracts. The latest estimate may be determined in a variety of ways and may be the same as the original estimate. Practices in estimating total contract costs vary, and guidance is needed in this area because of the impact of those practices on accounting. The following practices should be followed:

a. Systematic and consistent procedures that are correlated with the cost accounting system should be used to provide a basis for periodically comparing actual and estimated costs.

b. In estimating total contract costs, the quantities and prices of all significant elements of cost should be identified.

c. The estimating procedures should provide that estimated cost to complete includes the same elements of cost that are included in actual accumulated costs; also, those elements should reflect expected price increases.

d. The effects of future wage and price escalations should be taken into account in cost estimates, especially when the contract performance will be carried out over a significant period of time. Escalation provisions should not be blanket overall provisions but should cover labor, materials, and indirect costs based on percentages or amounts that take into consideration experience and other pertinent data.

e. Estimates of cost to complete should be reviewed periodically and revised as appropriate to reflect new information.

Computation of Income Earned for a Period Under the Percentage-of-Completion Method

79. Total estimated gross profit on a contract, the difference between total estimated contract revenue and total estimated contract cost, must be determined before the amount earned on the contract for a period can be determined. The portion of total revenue earned or the total amount of gross profit earned to date is determined by the measurement of the extent of progress toward completion using one of the methods discussed in paragraphs 44 to 51 of this statement. The computation of income earned for a period involves a determination of the portion of total estimated contract revenue that has been earned to date (earned revenue) and the portion of total estimated contract cost related to that revenue (cost of earned revenue). Two different approaches to determining earned revenue and cost of earned revenue are widely used in practice. Either of the alternative approaches may be used on a consistent basis.[16]

Alternative A

80. The advocates of this method believe that the portion of total estimated contract revenue earned to date should be determined by the measurement of the extent of progress toward completion and that, in accordance with the matching concept, the

[16]The use of Alternative A in the discussion and in the presentation of some of the provisions of this statement is for convenience and consistency and is not intended to imply that Alternative A is the preferred approach.

measurement of extent of progress toward completion should also be used to allocate a portion of total estimated contract cost to the revenue recognized for the period. They believe that this procedure results in reporting earned revenue, cost of earned revenue, and gross profit consistent with the measurement of contract performance. Moreover, they believe that, if there are no changes in estimates during the performance of a contract, the procedure also results in a consistent gross profit percentage from period to period. However, they recognize that a consistent gross profit percentage is rarely obtained in practice because of the need to be responsive in the accounting process to changes in estimates of contract revenues, costs, earned revenue, and gross profits. In accordance with this procedure, earned revenue, cost of earned revenue, and gross profit should be determined as follows:

a. *Earned Revenue* to date should be computed by multiplying total estimated contract revenue by the percentage of completion (as determined by one of the acceptable methods of measuring the extent of progress toward completion). The excess of the amount over the earned revenue reported in prior periods is the earned revenue that should be recognized in the income statement for the current period.

b. *Cost of Earned Revenue* for the period should be computed in a similar manner. Cost of earned revenue to date should be computed by multiplying total estimated contract cost by the percentage of completion on the contract. The excess of that amount over the cost of earned revenue reported in prior periods is the cost of earned revenue that should be recognized in the income statement for the current period. The difference between total cost incurred to date and cost of earned revenue to date should be reported on the balance sheet.

c. *Gross Profit* on a contract for a period is the excess of earned revenue over the cost of earned revenue.

Alternative B

81. The advocates of this method believe that the measurement of the extent of progress toward completion should be used to determine the amount of gross profit earned to date and that the earned revenue to date is the sum of the total cost incurred on the contract and the amount of gross profit earned. They believe that the cost of work performed on a contract for a period, including

materials, labor, subcontractors, and other costs, should be the cost of earned revenue for the period. They believe that the amount of costs incurred can be objectively determined, does not depend on estimates, and should be the amount that enters into the accounting determination of income earned. They recognize that, under the procedure that they advocate, gross profit percentages will vary from period to period unless the cost-to-cost method is used to measure the extent of progress toward completion. However, they believe that varying profit percentages are consistent with the existing authoritative literature when costs incurred do not provide an appropriate measure of the extent of progress toward completion. In accordance with Alternative B, earned revenue, cost of earned revenue, and gross profit are determined as follows:

a. *Earned Revenue* is the amount of gross profit earned on a contract for a period plus the costs incurred on the contract during the period.

b. *Cost of Earned Revenue* is the cost incurred during the period, excluding the cost of materials not unique to a contract that have not been used for the contract and costs incurred for subcontracted work that is still to be performed.

c. *Gross Profit* earned on a contract should be computed by multiplying the total estimated gross profit on the contract by the percentage of completion (as determined by one of the acceptable methods of measuring extent of progress toward completion). The excess of that amount over the amount of gross profit reported in prior periods is the earned gross profit that should be recognized in the income statement for the current period.

Revised Estimates

82. Adjustments to the original estimates of the total contract revenue, total contract cost, or extent of progress toward completion are often required as work progresses under the contract and as experience is gained, even though the scope of the work required under the contract may not change. The nature of accounting for contracts is such that refinements of the estimating process for changing conditions and new developments are continuous and characteristic of the process. Additional information that enhances and refines the estimating process is often obtained after the balance sheet date but before the issuance of the financial statements;

such information should result in an adjustment of the unissued financial statements. Events occurring after the date of the financial statements that are outside the normal exposure and risk aspects of the contract should not be considered refinements of the estimating process of the prior year but should be disclosed as subsequent events.

83. Revisions in revenue, cost, and profit estimates or in measurements of the extent of progress toward completion are changes in accounting estimates as defined in APB Opinion 20, *Accounting Changes*.[17] That opinion has been interpreted to permit the following two alternative methods of accounting for changes in accounting estimates:

- *Cumulative Catch-up.* Account for the change in estimate in the period of change so that the balance sheet at the end of the period of change and the accounting in subsequent periods are as they would have been if the revised estimate had been the original estimate.
- *Reallocation.* Account for the effect of the change ratably over the period of change in estimate and subsequent periods.

Although both methods are used in practice to account for changes in estimates of total revenue, total costs, or extent of progress under the percentage-of-completion method, the cumulative catch-up method is more widely used. Accordingly, to narrow the areas of differences in practice, such changes should be accounted for by the cumulative catch-up method.

84. Although estimating is a continuous and normal process for contractors, the second sentence of APB Opinion 20, paragraph 33, recommends disclosure of the effect of significant revisions if the effect is material.[18]

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[17]Paragraph 31 of APB Opinion 20, *Accounting Changes*, requires that "the effect of a change in accounting estimate should be accounted for in (*a*) the period of change if the change affects that period only or (*b*) the period of change and future periods if the change affects both."

[18]APB Opinion 20, paragraph 33, states,

> The effect on income before extraordinary items, net income and related per share amounts of the current period should be disclosed for a change in estimate that affects several future periods, such as a change in service lives of depreciable assets or actuarial assumptions affecting pension costs. Disclosure of the effect on those income statement amounts is not necessary for estimates made each period in the ordinary course of accounting for items such as uncollectible accounts or inventory obsolescence; however, disclosure is recommended if the effect of a change in the estimate is material.

Provisions for Anticipated Losses on Contracts

85. When the current estimates of total contract revenue and contract cost indicate a loss, a provision for the entire loss on the contract should be made. Provisions for losses should be made in the period in which they become evident under either the percentage-of-completion method or the completed-contract method. If a group of contracts are combined based on the criteria in paragraph 37 or 38, they should be treated as a unit in determining the necessity for a provision for a loss. If contracts are segmented based on the criteria in paragraph 40, 41, or 42 of this statement, the individual segments should be considered separately in determining the need for a provision for a loss.

86. Losses on cost-type contracts, although less frequent, may arise if, for example, a contract provides for guaranteed maximum reimbursable costs or target penalties. In recognizing losses for accounting purposes, the contractor's normal cost accounting methods should be used in determining the total cost overrun on the contract, and losses should include provisions for performance penalties.

87. The costs used in arriving at the estimated loss on a contract should include all costs of the type allocable to contracts under paragraph 72 of this statement. Other factors that should be considered in arriving at the projected loss on a contract include target penalties and rewards, nonreimbursable costs on cost-plus contracts, change orders, and potential price redeterminations. In circumstances in which general and administrative expenses are treated as contract costs under the completed-contract method of accounting, the estimated loss should include the same types of general and administrative expenses.

88. The provision for loss arises because estimated cost for the contract exceeds estimated revenue. Consequently, the provision for loss should be accounted for in the income statement as an additional contract cost rather than as a reduction of contract revenue, which is a function of contract price, not cost. Unless the provision is material in amount or unusual or infrequent in nature, the provision should be included in contract cost and need not be shown separately in the income statement. If it is shown separately, it should be shown as a component of the cost included in the computation of gross profit.

89. Provisions for losses on contracts should be shown separately as liabilities on the balance sheet, if significant, except in circumstances in which related costs are accumulated on the balance sheet, in which case the provisions may be deducted from the related accumulated costs. In a classified balance sheet, a provision shown as a liability should be shown as a current liability.

Transition

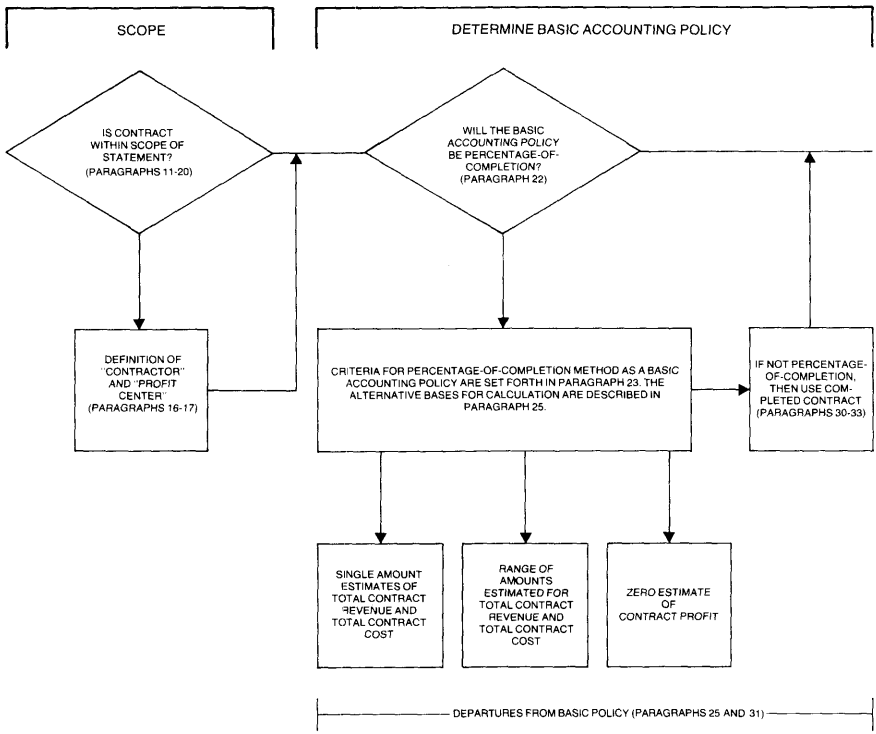
90. An accounting change from the completed-contract method or from the percentage-of-completion method to conform to the recommendations of this statement of position should be made retroactively by restating the financial statements of prior periods. The restatement should be made on the basis of current information if historical information is not available. If the information for restatement of prior periods is not available on either a historical or current basis, financial statements and summaries should be restated for as many consecutive prior periods preceding the transition date of this statement as is practicable, and the cumulative effect on the retained earnings at the beginning of the earliest period restated (or at the beginning of the period in which the statement is first applied if it is not practicable to restate any prior periods) should be included in determining net income for that period (see paragraph 20 of APB Opinion 20, *Accounting Changes*).

91. Accounting changes to conform to the recommendations of this statement of position, other than those stated in paragraph 90, should be made prospectively for contracting transactions, new contracts, and contract revisions entered into on or after the effective date of this statement. The division recommends the application of the provisions of this statement for fiscal years, and interim periods in such fiscal years, beginning after June 30, 1981. The division encourages earlier application of this statement, including retroactive application to all contracts regardless of when they were entered into. Disclosures should be made in the financial statements in the period of change in accordance with APB Opinion 20, paragraph 28.

APPENDIXES

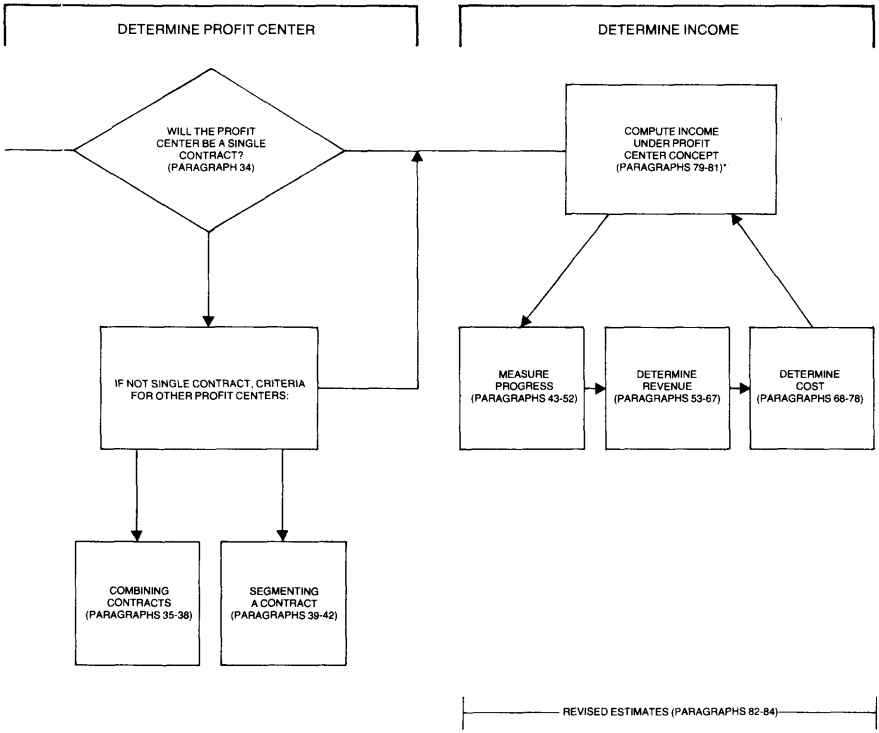
APPENDIX A

Schematic Chart of SOP Organization



NOTE: ALL PARAGRAPH NUMBERS ABOVE REFER TO *TEXT OF SOP.*

**If computation results in a loss, see paragraphs 85-89*


DETERMINE PROFIT CENTER
DETERMINE INCOME
WILL THE PROFIT CENTER BE A SINGLE CONTRACT? (PARAGRAPH 34)
COMPUTE INCOME UNDER PROFIT CENTER CONCEPT (PARAGRAPHS 79-81)*
IF NOT SINGLE CONTRACT, CRITERIA FOR OTHER PROFIT CENTERS:
MEASURE PROGRESS (PARAGRAPHS 43-52)
DETERMINE REVENUE (PARAGRAPHS 53-67)
DETERMINE COST (PARAGRAPHS 68-78)
COMBINING CONTRACTS (PARAGRAPHS 35-38)
SEGMENTING A CONTRACT (PARAGRAPHS 39-42)
REVISED ESTIMATES (PARAGRAPHS 82-84)

APPENDIX B

Types of Contracts

Four basic types of contracts are distinguished on the basis of their pricing arrangements in paragraph 15 of this statement: (*a*) fixed-price or lump-sum contracts, (*b*) time-and-material contracts, (*c*) cost-type (including cost-plus) contracts, and (*d*) unit-price contracts. This appendix describes the basic types of contracts in greater detail and briefly describes common variations of each basic type.

Fixed-Price or Lump-Sum Contracts

A fixed-price or lump-sum contract is a contract in which the price is not usually subject to adjustment because of costs incurred by the contractor. Common variations of fixed-price contracts are

1. *Firm fixed-price contract*—A contract in which the price is not subject to any adjustment by reason of the cost experience of the contractor or his performance under the contract.

2. *Fixed-price contract with economic price adjustment*—A contract which provides for upward or downward revision of contract price upon the occurrence of specifically defined contingencies, such as increases or decreases in material prices or labor wage rates.

3. *Fixed-price contract providing for prospective periodic redetermination of price*—A contract which provides a firm fixed-price for an initial number of unit deliveries or for an initial period of performance and for prospective price redeterminations either upward or downward at stated intervals during the remaining period of performance under the contract.

4. *Fixed-price contract providing for retroactive redetermination of price*—A contract which provides for a ceiling price and retroactive price redetermination (within the ceiling price) after the completion of the contract, based on costs incurred, with consideration being given to management ingenuity and effectiveness during performance.

5. *Fixed-price contract providing for firm target cost incentives*—A contract which provides at the outset for a firm target cost, a firm target profit, a price ceiling (but not a profit ceiling or floor), and a formula (based on the relationship which final negotiated total cost bears to total target cost) for establishing final profit and price.

6. *Fixed-price contract providing for successive target cost incentives*—A contract which provides at the outset for an initial target cost, an initial target profit, a price ceiling, a formula for subsequently fixing the firm

target profit (within a ceiling and a floor established along with the formula, at the outset), and a production point at which the formula will be applied.

7. *Fixed-price contract providing for performance incentives*—A contract which incorporates an incentive to the contractor to surpass stated performance targets by providing for increases in the profit to the extent that such targets are surpassed and for decreases to the extent that such targets are not met.

8. *Fixed-price level-of-effort term contract*—A contract which usually calls for investigation or study in a specific research and development area. It obligates the contractor to devote a specified level of effort over a stated period of time for a fixed dollar amount.[1]

Time-and-Material Contracts

Time-and-material contracts are contracts that generally provide for payments to the contractor on the basis of direct labor hours at fixed hourly rates (that cover the cost of direct labor and indirect expenses and profit) and cost of materials or other specified costs. Common variations of time and material contracts are

1. Time at marked-up rate.
2. Time at marked-up rate, material at cost.
3. Time and material at marked-up rates.
4. Guaranteed maximum cost—labor only or labor and material.

Cost-Type Contracts

Cost-type contracts provide for reimbursement of allowable or otherwise defined costs incurred plus a fee that represents profit. Cost-type contracts usually only require that the contractor use his best efforts to accomplish the scope of the work within some specified time and some stated dollar limitation. Common variations of cost-plus contracts are

1. *Cost-sharing contract*—A contract under which the contractor is reimbursed only for an agreed portion of costs and under which no provision is made for a fee.

2. *Cost-without-fee contract*—A contract under which the contractor is reimbursed for costs with no provision for a fee.

[1]AICPA Industry Audit Guide, *Audits of Government Contractors* (New York: American Institute of Certified Public Accountants, 1975), pp. 3–4.

3. *Cost-plus-fixed-fee contract*—A contract under which the contractor is reimbursed for costs plus the provision for a fixed fee.

4. *Cost-plus-award-fee contract*—A contract under which the contractor is reimbursed for costs plus a fee consisting of two parts: (*a*) a fixed amount which does not vary with performance and (*b*) an award amount based on performance in areas such as quality, timeliness, ingenuity, and cost-effectiveness. The amount of award fee is based upon a subjective evaluation by the government of the contractor's performance judged in light of criteria set forth in the contract.

5. *Cost-plus-incentive-fee contract (Incentive based on cost)*—A contract under which the contractor is reimbursed for costs plus a fee which is adjusted by formula in accordance with the relationship which total allowable costs bear to target cost. At the outset there is negotiated a target cost, a target fee, a minimum and maximum fee, and the adjustment formula.

6. *Cost-plus-incentive-fee contract (Incentive based on performance)*—A contract under which a contractor is reimbursed for costs plus an incentive to surpass stated performance targets by providing for increases in the fee to the extent that such targets are surpassed and for decreases to the extent that such targets are not met.[2]

Unit-Price Contracts

Unit-price contracts are contracts under which the contractor is paid a specified amount for every unit of work performed. A unit-price contract is essentially a fixed-price contract with the only variable being units of work performed. Variations in unit-price contracts include the same type of variations as fixed-price contracts. A unit-price contract is normally awarded on the basis of a total price that is the sum of the product of the specified units and unit prices. The method of determining total contract price may give rise to unbalanced unit prices because units to be delivered early in the contract may be assigned higher unit prices than those to be delivered as the work under the contract progresses.

[2]AICPA Industry Audit Guide, *Audits of Government Contractors*, pp. 4–6.

APPENDIX C

Summary of Disclosure Recommendations in Statement of Position

SOP Par.	*Nature of Disclosure*
21	Accounting policy—methods of reporting revenue
45	Method or methods of measuring extent of progress toward completion
52	Criteria for determining substantial completion
65–67	Information on revenue and costs arising from claims
84	Effects of changes in estimates on contracts
90–91	Effects of accounting changes to conform to SOP

APPENDIX 2

Illustrations of Segmenting Criteria

Information relating to the segmenting of contracts for revenue recognition purposes and the criteria for segmenting are discussed in paragraphs 39 to 41 of the SOP. The following examples illustrate the application of those criteria in specific circumstances:

1. A design/build contractor negotiates a contract that provides for design engineering, procurement, and construction of a nuclear power plant. The contract specifies the separate phases of the work, and, for this type of project, the phases are frequently contracted separately. Moreover, the contractor has a significant history of providing similar services to other customers contracting for the phases separately. Such a history shows a relatively stable pricing policy. The contractor's normal fee on design engineering is 15%, on procurement, 2%, and on construction, 5%. These rates are commensurate with the different levels of risk attributable to the separate phases, and the aggregate of the values of the separate phases produced from such a fee structure is approximately equal to the overall contract price. The similarity of services and prices in the contract segments to services and the prices of such services to other customers contracted separately is documented and verifiable. The contract does not meet the first set of criteria (paragraph 40 of the SOP) but does meet the second set of criteria (paragraph 41 of the SOP) and therefore qualifies for segmenting. However, if any one of the required conditions in paragraph 41 is not met, segmenting would not be appropriate. For example, the contractor's significant history might have been with fossil fueled instead of nuclear powered generating plants. Or the different gross profit rates, even though supported by the contractor's history, might not be justified by different levels of risk or by disparities in the relationship of supply and demand for the segment services. Such circumstances could arise from an erratic or unusual labor market for a particular project.
2. A contract provides for construction of an apartment building, swimming pool, and other amenities. The contractor has a significant history of providing similar services to other customers who have contracted for such services separately. His significant history is one of a relatively stable pricing policy. He wishes to assign values to the seg-

ments on the basis of his normal historical prices and terms to such customers. On that basis, the aggregate of the segment values will approximate the total contract price. However, although this contractor performs the phases separately, the practice is unusual and is not done by other contractors in the industry. Also, the different gross profit rates that the contractor would ascribe to the segments based on his history cannot practicably be related to economic risk or supply and demand disparities. Since the facts do not meet the criteria in either paragraph 40 or 41 of the SOP, the contract should not be segmented.

3. A contractor is a road builder, performing alternately under contracts in which much of the work is subcontracted and under contracts in which he performs all the work himself. Under contracts involving subcontractors, the contractor generally realizes a lower profit margin due to the spread of risk to subcontractors. He therefore wishes to segment his contract revenues between the subcontracted portions of the work and the portions that he performs himself, assigning a greater amount of revenue to the latter and a lesser amount to the former. His history with both types of work is significant and is supported by a relatively stable pricing policy. However, it is not customary for the portions of the work to which the greater amounts of revenue are to be ascribed to be contracted separately from the other portions. The contract should not be segmented since the criteria in neither paragraph 40 nor 41 of the SOP are met.
4. An electrical and mechanical subcontractor is awarded both the electrical and mechanical work based on separate, independent bids. Separate subcontracts are signed and become the profit centers for profit recognition purposes. Had the work been negotiated as a package, the contract might have been segmented only if the criteria in either paragraph 40 or 41 of the SOP had been met.
5. A contractor is awarded a contract to construct three virtually identical generating power plants in different locations. His costs will vary because of differences in site work, transportation, labor conditions, and other factors at the three locations. He wishes to segment contract revenues in response to cost differences. He has a significant history of constructing generating plants under separate contracts under a relatively stable pricing policy. However, segmenting contract revenues on this basis would not be commensurate with the different levels of risk or the supply or demand disparities of the three projects. The contract should not be segmented in these circumstances.

APPENDIX 3

Computing Income Earned Under the Percentage-of-Completion Method

Illustration of the Alternative A Procedure

The following hypothetical data are used to illustrate the computation of income earned under the Alternative A procedure. A contracting company has a lump-sum contract for $9 million to build a bridge at a total estimated cost of $8 million. The construction period covers three years. Financial data during the construction period are as follows:

	Year 1	*Year 2*	*Year 3*
	(in thousands of dollars)		
Total estimated revenue	$9,000	$9,100	$9,200
Cost incurred to date	$2,050	$6,100	$8,200
Estimated cost to complete	6,000	2,000	—
Total estimated cost	$8,050	$8,100	$8,200
Estimated gross profit	$ 950	$1,000	$1,000
Billings to date	$1,800	$5,500	$9,200
Collections to date	$1,500	$5,000	$9,200
Measure of progress	25%	75%	100%

The amount of revenue, costs, and income recognized in the three periods would be as follows:

	To Date	Recognized Prior Year	Current Year
		(in thousands of dollars)	
Year 1			
Earned revenue ($9,000,000 × .25)	$2,250.0		$2,250.0
Cost of earned revenue ($8,050,000 × .25)	2,012.5		2,012.5
Gross profit	$ 237.5		$ 237.5
Gross profit rate	10.5%		10.5%
Year 2			
Earned revenue ($9,100,000 × .75)	$6,825.0	$2,250.0	$4,575.0
Cost of earned revenue ($8,100,000 × .75)	6,075.0	2,012.5	4,062.5
Gross profit	$ 750.0	$ 237.5	$ 512.5
Gross profit rate	11.0%	10.5%	11.2%
Year 3			
Earned revenue	$9,200.0	$6,825.0	$2,375.0
Cost of earned revenue	8,200.0	6,075.0	2,125.0
Gross profit	$1,000.0	$ 750.0	$ 250.0
Gross profit rate	10.9%	11.0%	10.5%

Comparison of Alternative A and Alternative B

The following hypothetical data are used to compare the income statement and balance sheet effects of Alternative A and Alternative B:

Estimated Contract	
Revenues	$1,000,000
Cost	900,000
Gross profit	$ 100,000
% of gross profit	10%

Annual Information	*To Date*	*Current*
Year 1		
Billings	$ 200,000	$200,000
Cost incurred	300,000	300,000
% complete	25%	

Annual Information	*To Date*	*Current*
Year 2		
Billings	$ 750,000	$550,000
Cost incurred	650,000	350,000
% complete	75%	
Year 3		
Billings	$1,000,000	$250,000
Cost incurred	900,000	250,000
% complete	100%	

The results of measuring earned revenues, cost of earned revenues, and gross profit by Alternative A and Alternative B would be as follows:

	Alternative A	*Alternative B*
Income Statement		
Year 1		
Earned revenue	$250,000	$325,000
Cost of earned revenue	225,000	300,000
Gross profit	$ 25,000	$ 25,000
% of gross profit	10%	7.7%
Year 2		
Earned revenue	$500,000	$400,000
Cost of earned revenue	450,000	350,000
Gross profit	$ 50,000	$ 50,000
% of gross profit	10%	12.5%
Year 3		
Earned revenue	$250,000	$275,000
Cost of earned revenue	225,000	250,000
Gross profit	$ 25,000	$ 25,000
% of gross profit	10%	9.1%
Balance Sheet Debit (Credit)		
Year 1		
Cost of uncompleted contracts and estimated profit in excess of billings	$125,000	
Unbilled revenues		$125,000
Year 2		
Excess of billings over costs incurred and estimated earnings on uncompleted contracts	$(25,000)	
Excess billings		$(25,000)

Discussion of the Results Under the Two Methods

Under Alternative A, earned revenue, cost of earned revenue, and gross profit are measured by the extent of progress toward completion. Under Alternative B, only the amount of gross profit is measured by the extent of progress toward completion. Therefore, the same amount of gross profit is reported under either method. However, under Alternative B, earned revenue is the amount of costs incurred during the period plus the amount of gross profit recognized based on the extent of progress toward completion, and the cost of earned revenue is the amount of costs incurred during the period. For that reason, earned revenue and cost of earned revenue under Alternative B are not comparable to the measurement of extent of progress toward completion unless the extent of progress is measured by the cost-to-cost method.

Except for differences in the descriptive account titles, the net balance sheet effect under the two methods is the same.

APPENDIX 4

Examples of Computation of Income Earned

(For convenience and consistency, all computations are based on the Alternative A procedure)

Exhibit 1—Cost-to-Cost Method

A general contractor specializes in the construction of commercial and industrial buildings. The contractor is experienced in bidding long-term construction projects of this type, with the typical project lasting fifteen to twenty-four months. The contractor uses the percentage-of-completion method of revenue recognition since, given the characteristics of the contractor's business and contracts, it is the most appropriate method. That is, the contracts entered into by the contractor normally specify clearly the rights of the parties regarding services to be provided, consideration, etc.; and the contractor has demonstrated the ability to provide dependable estimates of contract revenue, contract costs, and gross profit. Progress toward completion is measured on the basis of incurred costs to estimated total costs since, in the opinion of management, this basis of measurement is most appropriate in the circumstances.

The company began work on a lump-sum contract at the beginning of year 1. As bid, the statistics were as follows:

Lump-sum price		$1,500,000
Estimated costs		
Labor	$300,000	
Materials and subcontractors	800,000	
Indirect costs	100,000	1,200,000
Estimated gross profit		$ 300,000

After construction began, a change order was negotiated, increasing the lump-sum price by $150,000 at an estimated additional contract cost of $120,000 (labor–$10,000, materials–$110,000).

At the end of the first year, the following was the status of the contract:

Billings to date		$ 800,000
Costs incurred to date		
Labor	$120,000	
Materials and subcontractors	478,000	
Indirect costs	50,000	648,000
Latest forecast total cost		1,320,000

Costs incurred to date include $40,000 for standard electrical and mechanical materials stored on the job site and $80,000 for steel in the fabricator's plant (including steel cost of $60,000 and labor cost of $20,000 based on 1,000 hours at $20 per hour). The steel is 100 percent complete and has been fabricated specifically to meet the unique requirements of this job.

Computations for the percentage-of-completion method follow:

$$\text{Measure of progress} = \frac{\text{Costs incurred to date}}{\text{Estimated total cost}} = \frac{\$648{,}000 - \$40{,}000}{\$1{,}320{,}000} = 46\% \text{ complete}$$

$$\text{Earned revenue} = 46\% \times (\$1{,}500{,}000 + \$150{,}000) = \$759{,}000$$

$$\text{Cost of earned revenue} = 46\% \times (\$1{,}200{,}000 + \$120{,}000) = \$608{,}000$$

The costs of the electrical and mechanical materials at the job site are excluded from "costs incurred to date" because the materials consist of stock items and have not yet become an integral part of the project; on the other hand, the $80,000 of steel is included in "costs incurred to date" because the steel is now specifically fabricated to meet the specifications of this project and, therefore, may be considered a part of the project at this point.

An entry is therefore required to reclassify the $40,000 cost of materials not installed from accumulated cost of contracts in progress to materials inventory. Also, an entry must be made to reflect earned revenue and related costs in the income and expense accounts. On the assumption that all costs related to the contract have been charged to the balance sheet account (the "costs of contracts in progress"), and all billings have been credited to the balance sheet account ("progress billings"), the following entry would be made:

	DR	*CR*
Cost of earned revenue	$608,000	
Estimated earnings on contracts in progress	151,000	
Earned revenue		$759,000

Assuming the contract is completed in the next year with no change in price or cost, the results would appear in the income statement as follows:

	Year		
	1	*2*	*Total*
Progress measurement at end of year	46%	100%	
Contract operations			
Earned revenue	$759,000	$891,000	$1,650,000
Costs			
Labor	$120,000	$190,000	$ 310,000
Materials and subcontractors	438,000	472,000	910,000
Indirect costs	50,000	50,000	100,000
	$608,000	$712,000	$1,320,000
Gross profit	$151,000	$179,000	$ 330,000
Gross profit rate	20%	20%	20%

Exhibit 2—Labor-Hours Method

A general contractor specializes in the construction of industrial plants for manufacturing businesses. The construction period of the typical manufacturing facility ranges from thirteen to twenty months. Because of the nature of the construction contracts and the practices followed by the

contractor, the contractor has determined that the percentage-of-completion method of revenue recognition is appropriate and that the labor-hours method is the best measure of progress toward completion.

Estimated labor hours must include the labor hours of the company as well as the labor hours of its subcontractors that produce goods specifically for the project. For example, labor hours incurred by a steel company in the production of standard items for the project are not included in total labor hours; however, labor hours incurred by a steel company in fabricating standard items specifically for the project are included in total hours. If management is unable to obtain accurate estimates of its own or all appropriate subcontractors' labor hours at the beginning of the project and as work progresses, the labor-hours method would not be appropriate.

The assumptions and data used in this illustration are identical to those used in Exhibit 1 except that the contractor uses the labor-hours method instead of the cost-to-cost method.

At the end of the first year, the company had incurred 6,000 labor hours, the steel fabricator 1,000 labor hours, and all other subcontractors 3,080 labor hours. Estimated total labor hours for the project are 21,000.

Computations under the percentage-of-completion method follow:

$$\text{Measure of progress} = \frac{\text{Labor hours to date (10,080)}}{\text{Estimated total labor hours (21,000)}}$$

$$\text{Percentage complete} = 48\%$$

$$\text{Earned revenue} = 48\% \times (\$1{,}500{,}000 + \$150{,}000)$$

$$= \$792{,}000$$

$$\text{Cost of earned revenue} = 48\% \times (\$1{,}200{,}000 + \$120{,}000)$$

$$= \$633{,}600$$

An entry is required to transfer the $40,000 cost of materials that have not entered into the revenue recognition process from accumulated cost of contracts in progress to materials inventory.

Materials inventory	$40,000
Cost of contracts in progress	$40,000

After the adjustment, the balance in the cost-of-contracts-in-progress account is $608,000 ($648,000 − $40,000). However, since the cost of earned revenue is $633,600, an additional adjustment of $25,600 ($633,600 − $608,000 = $25,600) is required to properly state the cost associated with the revenue earned for the period.

Cost of contract in progress	$25,600
Liability for contract work to be performed	$25,600

Assuming that the contract is completed in the next fiscal year with no change in price or cost, the results would appear in the income statement:

	Year		
	1	*2*	*Total*
Contract operations			
Earned revenue	$792,000	$858,000	$1,650,000
Cost of revenue earned	633,600	686,400	1,320,000
Gross profit	$158,400	$171,600	$ 330,000

Exhibit 3—Construction Management

A construction company enters into a construction management contract for the construction of a paper mill. The contract is a cost-plus contract in which the contractor acts solely in the capacity of an agent and has no risks associated with the costs managed. That is, the contractor is not responsible for the nature, type, characteristics, or specifications of materials or for the ultimate acceptance of the project; moreover, the contractor's fee was based on the lack of risk inherent in the negotiated contract.

Consistent with the "risk-free" nature of the management contract, the company measures job progress based on the labor hours for which it has direct control. That is, only those labor hours incurred as a result of the actual management effort should be used to measure job progress. Thus, the hours incurred by the various contractors and subcontractors on the project do not enter into the measure of job progress from the construction manager's standpoint.

The contractor may accrue his fees as they become billable, assuming they are at a constant percentage of costs incurred. The following example, which assumes that the contractor employs the labor-hours method, gives the same results, since labor hours are the basis for fee reimbursement. Since he has no risks associated with subcontractors' work, their labor hours are excluded from the computation.

Assume:	
Total estimated construction management hours	10,000
Cost per hour (includes indirect costs)	$ 20
Total estimated costs	$200,000
Fee (15%)	30,000
Total estimated revenue	$230,000
At the end of the first year:	
Hours used	4,000 hrs.
Estimated total hours	10,000 hrs.
Measure of progress	40%

If the contract is completed in the second year without any changes in contract revenues and costs, the results would appear in the income statement as follows:

	First Year	*Second Year*	*Total*
Contract revenues (hours used at $20 × 115%)	$92,000	$138,000	$230,000
Contract costs (includes indirect costs)	80,000	120,000	200,000
Gross profit (15%)	$12,000	$ 18,000	$ 30,000

Exhibit 4—Unit Price

A roadbuilder performs work primarily as a subcontractor on large highway projects. On those projects, the company's work consists only of laying concrete. All site preparation and other work is performed by the general contractor or by subcontractors to the general contractor. The cost elements include labor and related costs, cost of expansion and contraction joints, the cost of reinforcing steel, the cost of cement and other materials, and equipment costs. The company reports its income on the percentage-of-completion basis and measures progress toward completion on the basis of units of work completed, since all costs are incurred essentially equally as square yards of concrete are laid (with the exception of mobilization and demobilization costs, which are incurred at the beginning and end of the job).

A contract sets forth ten separate pay items, which, when totaled and converted to price per square yard of concrete, equal $12 per square yard for concrete that is to be 9″ thick. Estimated square yards of concrete to be laid approximate 450,000, and estimated total cost is $5,000,000. Costs incurred through the end of the first year on the contract, excluding mobilization costs, total $2,200,000, which includes $100,000 of materials not used. Mobilization costs incurred total $70,000, and projected demobilization costs total $30,000. Physical output, as reported by the state engineer and confirmed by the company engineer, totals 200,000 square yards at the end of the first year.

Input information (square yards of concrete poured) should not be used for determination of revenue since the company must lay the concrete in excess of 9″ thick to meet state requirements that concrete not be less than 9″ thick based on test borings; thus, input in terms of cubic yards poured would exceed billable output. Accordingly, the output measure (square yards laid) is the appropriate measure of progress.

The company's earned revenue and costs of earned revenue for the first year are computed on the following page.

$$\text{Measure of progress} = \frac{\text{Square yards laid}}{\text{Total square yards to be laid}}$$

$$= \frac{200{,}000}{450{,}000}$$

$$\text{Percentage complete} = 44\%$$

$$\text{Earned revenue} = 44\% \times \$5{,}400{,}000$$

$$= \$2{,}376{,}000$$

$$\text{Cost of earned revenue} = 44\% \times \$5{,}000{,}000$$

$$= \$2{,}200{,}000$$

Additional Considerations

If such a roadbuilder served as the prime contractor and performed all site preparation, sewer, and other related work, no single unit would appropriately measure progress toward completion. Some other method, such as labor hours or cost to cost, would be preferable.

If the cost-to-cost method is used, it is necessary to include the mobilization costs and to exclude the cost of the materials not used from the cost incurred in the measure of progress calculation. The computation is as follows:

$$\text{Measure of progress} = \frac{\text{Cost incurred to date}}{\text{Estimated total cost}}$$

$$= \frac{\$2{,}200{,}000 + \$70{,}000 - \$100{,}000}{\$5{,}000{,}000}$$

$$\text{Percentage complete} = 43\%$$

Exhibit 5—Zero Profit

A contractor has been awarded a fixed-price contract with escalation clauses for the construction of a housing project in Saudi Arabia. The contractor has no construction experience in that part of the world, and various uncertainties involving mobilization, procurement costs, and labor costs make it difficult to determine the amount of total contract revenue and costs. However, while the contractor is unable to estimate total contract costs as either a single amount or range of amounts, the terms of the contract provide protection for the contractor from incurring a loss under any reasonable circumstances. The contract price is $460,000,000.

For purposes of this illustration, it is assumed that there are no changes in estimates of contract revenues for the duration of the contract. The contractor is consistently using an acceptable measure of progress; and at

the end of the first year relating to this contract, the project is considered to be 12 percent complete. Costs incurred to date are $67,200,000. Since inception there has been no improvement in the contractor's ability to estimate total costs in terms of a single amount or range of amounts.

Following is the status of the project for accounting purposes at the end of the first year:

Earned revenue (12% of $460,000,000)	$55,200,000
Cost of earned revenue	55,200,000
Gross profit	—
Deferred costs at end of year	$12,000,000

That portion of the cost incurred to date ($67,200,000) in excess of the cost of earned revenue ($55,200,000) is reported as a deferred cost in the balance sheet.

At the end of the second year, the contractor can estimate that the total contract costs will be between $410,000,000 and $440,000,000. The measure of work completed indicated that the project is 31 percent complete at that date. Costs incurred to date are $142,400,000.

Table 1 on page 172 gives the status of the project for accounting purposes at the end of the second year. The maximum estimated costs were used in accounting for the contract. The cumulative amount of earned revenue is $142,600,000 (31% of $460,000,000) and the cost of earned revenue is $136,400,000 (31% of $440,000,000). That portion of the cost incurred to date in excess of the cost of earned revenue is reported as a deferred cost in the balance sheet.

The change from the zero profit method is a change in estimate, and the effect of the change on the second year should be disclosed. In this illustration, the effect of the change is $1,200,000, computed as follows:

At the end of the first year, using revised estimates—	
Earned revenue, 12 percent of $460,000,000	$55,200,000
Cost of earned revenue, 12 percent of $440,000,000	52,800,000
Gross profit	$ 2,400,000
Gross profit recognized to date	—
Effect of change in estimate, before tax effect	$ 2,400,000
Tax effect, at assumed 50 percent rate	1,200,000
Effect of change in estimate, after tax effect	$ 1,200,000

Table 2 on page 172 is a summary of the contract for the first and second years and the remaining years to completion. For this purpose, it is assumed there are no subsequent changes in estimates of contract costs from the $440,000,000 maximum estimate at the end of the second year.

Table 1

	First Year	*Second Year*	*Total*
Earned revenue	$55,200,000	$87,400,000	$142,600,000
Cost of earned revenue	55,200,000	81,200,000	136,400,000
Gross profit	$ —	$ 6,200,000	$ 6,200,000
Deferred costs	$12,000,000	$ 6,000,000	

Table 2

	First Year	*Second Year*	*Remaining Years to Completion*	*Total*
Earned revenue	$55,200,000	$87,400,000	$317,400,000	$460,000,000
Cost of earned revenue	55,200,000	81,200,000	303,600,000	440,000,000
Gross profit	$ —	$ 6,200,000	$ 13,800,000	$ 20,000,000
Deferred costs at end of year	$12,000,000	$ 6,000,000	$ —	$ —

Exhibit 6—Loss Contract

A contractor specializes in underground construction work. As a rule, the projects on which the contractor works take from two to three years to complete. The contractor uses the percentage-of-completion method of revenue recognition since, given the contractor's ability to estimate contract costs, revenue, and progress, it is the most appropriate method. Furthermore, the contractor's standard contract normally includes provisions that specify the enforceable rights regarding the work to be performed, consideration, and terms of settlement. Taken in combination, these factors provide a sound basis for the use of percentage-of-completion.

In 19X7 the contractor obtained a contract for $1,620,000. Profit was estimated at $243,000. At December 31, 19X7, $500,000 had been billed, costs of $510,000 had been incurred, and estimated costs to complete were projected to be $867,000, resulting in the projected profit of $243,000. The cost to complete was determined by the job superintendent and was checked against engineering estimates of units of work completed and units of work to be completed. During 19X8 the company encountered heavy rains, worse than anticipated soil conditions, and field supervision problems. As a result of this, a loss of $60,000 was projected at the completion of the project. At December 31, 19X8, billings of $1,480,000 had been made, costs of $1,550,000 had been incurred, and costs to complete were estimated at $130,000.

Using the foregoing information, the percentage of completion is computed below for both years, using the cost-to-cost method to measure progress. The cost-to-cost method is used in this situation because management believes it provides the most accurate measure of job progress under the current contract conditions.

19X7

$$\text{Measure of progress} = \frac{\text{costs incurred to date}}{\text{total estimated costs}}$$

$$= \frac{\$\ 510{,}000}{\$1{,}377{,}000} = 37\%$$

19X8

$$\text{Measure of progress} = \frac{\$1{,}550{,}000}{\$1{,}680{,}000} = 92\%$$

In view of the fact that a loss will be incurred, it is necessary that the entire amount of the estimated loss at December 31, 19X8, be accrued since generally accepted accounting principles require that a provision for

the entire estimated loss on each contract should be made in the period in which the loss becomes evident. The entry to record the loss follows:

	DR	*CR*
Provision for loss on uncompleted contract (income statement)	$60,000	
Estimated losses on uncompleted contracts (balance sheet)		$60,000

For income statement purposes, the provision for loss can be included in related costs; however, if the amount is material, consideration should be given to disclosing the amount as a separate line item or in the notes to financial statements.

Work under the contract is completed in 19X9, and there are no further changes in contract revenues and costs. A loss of $60,000 was incurred on the contract.

The computation of earned revenue, job costs, and gross profit for income statement purposes is shown below:

	Current Year	*Total-to-Date*
19X7 (37% completed)		
Earned revenue ($1,620,000 × 37%)	$ 599,400	$ 599,400
Cost of earned revenue ($1,377,000 × 37%)	509,490	509,490
Gross profit	$ 89,910	$ 89,910
Gross profit rate	15%	15%
19X8 (92% completed)		
Earned revenue ($1,620,000 × 92%)	$ 891,000	$1,490,400
Cost of earned revenue (Note)	1,040,910	1,550,400
Gross profit	$ (149,910)	$ (60,000)
Gross profit rate	(16.8%)	(4%)
19X9 (100% completed)		
Earned revenue ($1,620,000 × 100%)	$ 129,600	$1,620,000
Cost of earned revenue ($1,620,000 × 100% plus loss)	129,600	1,680,000
Gross profit	$ -0-	$ (60,000)
Gross profit rate	—	(3.7%)

Note: The cost of earned revenue at the end of 19X8, the year in which the estimated loss became known, is computed as follows:

Estimated total cost to extent of total estimated revenue	$1,620,000
Measure of progress	× 92%
Cost of earned revenue before loss provision	$1,490,400
Add estimated total loss	60,000
Cost of earned revenue	$1,550,400

Exhibit 7—Combining

A contractor who specializes in the construction of multi-family residential and commercial properties was approached by a prospective customer late in the fall to discuss the construction of a residential housing and shopping center project. They arrived at general conceptual agreement as to the nature of the work and appropriate timing and magnitude of cost estimates for the project. After the meeting, the project developer obtained the final members of the investment groups for the properties, and drawings and building specifications were then completed. The contractor was awarded the job, but under separate contracts for the apartment complex portion of the project and the shopping center. The developer explained that he needed separate contracts due to financing requirements and in order to maximize tax benefits for the investors.

When presented the contracts, the contractor stated that the breakdown of price between the two sections of the project was not in agreement with his pricing structure. However, the contractor noted that the combined contract prices resulted in a gross profit that was satisfactory to him. Because of this and since the work on the separate phases would be performed in a relatively common time frame, he signed the contracts as they were prepared. Before signing the contracts, though, the contractor told the developer that it would not be practical to separate costs between the two projects, since the same work crew and same machinery would be used jointly on the two phases. The contractor concluded that it would be appropriate to account for the two projects on a combined basis and report his financial results accordingly.

Estimated total contract revenues and costs for the two contracts are as follows:

	Apartment Project	*Shopping Center*	*Total*
Estimated contract revenue	$5,000,000	$2,000,000	$7,000,000
Estimated contract costs	4,000,000	1,800,000	5,800,000
Estimated gross profit	$1,000,000	$ 200,000	$1,200,000
Gross profit rate	20%	10%	17%

For purposes of this illustration, it is assumed that there are no changes in estimates of contract revenues or costs for the duration of the contracts and that the contractor uses the labor-hours method in determining percentage of completion. At the end of the first year relating to the two contracts, the following is their status.

	Apartment Project	*Shopping Center*	*Total*
Labor hours incurred to date	45,000	15,000	60,000
Estimated total contract labor hours	80,000	20,000	100,000
Measure of progress	56.25%	75%	60%

Based on the foregoing, the recognized revenue, cost, and gross profit for the combined contract for the first fiscal year and for the second fiscal year of the contract is as follows:

	First Year	*Second Year*	*Total*
Year 1 (60% completed)			
Earned Revenue (60% × $7,000,000)	$4,200,000		$4,200,000
Cost of earned revenue (60% × $5,800,000)	3,480,000		3,480,000
Gross Profit	$ 720,000		$ 720,000
Gross profit rate	17%		17%
Year 2 (100% complete)			
Earned Revenue ($7,000,000 × 100%)	$4,200,000	$2,800,000	$7,000,000
Cost of earned revenue ($5,800,000 × 100%)	3,480,000	2,320,000	5,800,000
Gross profit	$ 720,000	$ 480,000	$1,200,000
Gross profit rate	17%	17%	17%

If the contracts had not been combined, the following differences would have occurred in the revenue, costs, and gross profit reported at the end of year 1.

	Earned Revenue	*Cost of Earned Revenue*	*Gross Profit*
Apartment Project (56.25% complete)	$2,812,500	$2,250,000	$562,500
Shopping Center (75% complete)	1,500,000	1,350,000	150,000
Total	$4,312,500	$3,600,000	$712,500
Amounts reported under combining	$4,200,000	$3,480,000	$720,000
Difference in amounts at end of first year if contracts had not been combined	$ 112,500	$ 120,000	$ 7,500

Exhibit 8—Segmenting

A company specializes in the engineering, procurement of materials, and construction of chemical processing plants. The company has been awarded one such contract, which is priced at cost, plus 10 percent allowances for indirect costs on engineering and procurement phases and a fixed fee of $225,000. The scope of the contract calls for those separable phases of the work. Contract provisions state that the fixed fee was agreed to on the basis of the following rates:

	Base Cost	*Fee Rate*	*Fee*
Engineering	$ 176,000	25.00%	$ 44,000
Procurement	44,000	2.00%	880
Construction	4,800,000	3.75%	180,120
	$5,020,000		$225,000

Estimated total contract revenue is computed as follows:

Engineering	
8000 hours at $20	$ 160,000
Allowance for indirect costs	16,000
Procurement	
2000 hours at $20	40,000
Allowance for indirect costs	4,000
Construction, including labor, materials, subcontract, and indirect costs	4,800,000
	$5,020,000
Fixed fee	225,000
	$5,245,000

The contractor meets the criteria for segmenting. In addition to the contract specifying the separate phases of the work, such phases are frequently contracted separately, and the contractor has a significant history of providing the engineering services to other customers separately. Such a history shows a relatively stable pricing policy. The similarity of services and prices on the contract segments to services and the prices of such services to other customers contracted separately is documented and verifiable. In the past the contractor's normal fees have been 15 percent on engineering, 2 percent on procurement, and 5 percent on construction. Those rates are commensurate with the different levels of risk attributable to the separate phases of the work. A comparison of the aggregate of the values of the separate phases of the contract that would have been produced from such a fee structure to the contractual fee arrangement is as follows:

		Contract Revenue	*Fee*
Engineering			
Direct costs	$ 160,000		
Allowance for indirect costs	16,000		
	$ 176,000		
Normal fee, at 15%	26,400	$ 202,400	$ 26,400
Procurement			
Direct costs	$ 40,000		
Allowance for indirect costs	4,000		
	$ 44,000		
Normal fee, at 2%	880	44,880	880
Construction (total costs)	$4,800,000		
Normal fee, at 5%	240,000	5,040,000	240,000
		$5,287,280	$267,280
Estimated total contract revenue and fee		5,245,000	225,000
Excess of the sum of the prices of the separate elements over estimated total contract revenues		$ 42,280	$ 42,280

This excess is attributable to cost savings incident to performance as a single project. The contractor segments revenues into the three profit centers in the manner set forth in the following table. Note that the contract-provision stipulating a 25 percent profit margin for engineering is not used, since that margin is not supported by historical experience.

	Engineering	*Procurement*	*Construction*	*Total*
Normal historical fee, as stated above	$ 26,400	$ 880	$ 240,000	$ 267,280
Less reduction to reflect allocation of the excess amount, in proportion to the above prices	(4,176)	(139)	(37,965)	(42,280)
Adjusted fee	$ 22,224	$ 741	$ 202,035	$ 225,000
Estimated total cost	176,000	44,000	4,800,000	5,020,000
Estimated total contract revenue, as adjusted	$198,224	$44,741	$5,002,035	$5,245,000

For purposes of this illustration, it is assumed that there are no changes in estimates of contract revenues, costs, and labor hours for the duration of the contract. The contractor uses the labor-hours method in determining measure of progress. Construction hours include the hours of the construction manager, the general contractor, and all subcontractors. At the end of the first year, the following is the contract status:

Profit Center	*Labor Hours Incurred to Date*	*Estimated Total Labor Hours*	*Measure of Progress*
Engineering	40,000 hrs.	44,000 hrs.	90.9%
Procurement	5,500	11,000	50.0%
Construction	75,000	600,000	12.5%
	120,500 hrs.	655,000 hrs.	18.4%

Recognized revenues, costs, and gross profit for the first fiscal period are as follows:

Profit Center	*Recognized Revenues*	*Cost Incurred*	*Gross Profit*
Engineering			
90.9% of estimated total revenues	$180,186		
90.9% of estimated total costs		$159,984	$ 20,202
Procurement			
50.0% of estimated total revenues	$ 22,370		
50.0% of estimated total costs		$ 22,000	$ 370
Construction			
12.5% of estimated total revenues	$625,254		
12.5% of estimated total costs		$600,000	$ 25,254
	$827,810	$781,984	$ 45,826

Assuming the contract is completed in the second fiscal period, recognized revenues, costs, and gross profit for the two fiscal periods would be as follows:

Profit Center	*Year 1*	*Year 2*	*Total*
Engineering			
Earned revenue	$180,186	$ 18,038	$ 198,224
Cost of earned revenue	159,984	16,016	176,000
Gross profit	$ 20,202	$ 2,022	$ 22,224
Procurement			
Earned revenue	$ 22,370	$ 22,371	$ 44,741
Cost of earned revenue	22,000	22,000	44,000
Gross profit	$ 370	$ 371	$ 741
Construction			
Earned revenue	$625,254	$4,376,781	$5,002,035
Cost of earned revenue	600,000	4,200,000	4,800,000
Gross profit	$ 25,254	$ 176,781	$ 202,035
Total Contract			
Earned revenue	$827,810	$4,417,190	$5,245,000
Cost of earned revenue	781,984	4,238,016	5,020,000
Gross profit	$ 45,826	$ 179,174	$ 225,000

If the contract had not been segmented, recognized revenues for year 1 would have been revised as follows:

Earned revenue (18.4% complete × $5,245,000)	$965,080
Costs of revenue (18.4% complete × $5,020,000)	923,680
Gross profit without segmenting	$ 41,400
Gross profit under segmenting	45,826
Additional gross profit under segmenting—year 1	$ 4,426

APPENDIX 5

Example of Change in Accounting Estimate

Accounting Principles Board Opinion 20 requires that a change in accounting estimate be accounted for in (*a*) the period of change if the change affects that period only or (*b*) the period of the change and future periods if the change affects both. Paragraph 33 of Accounting Principles Board Opinion 20 requires disclosure of the effect on income before extraordinary items, net income, and the related per share amounts of the current period for a change in an accounting estimate that affects several future periods, such as a change in service lives of depreciable assets or in actuarial assumptions affecting pension costs. Accounting Principles Board Opinion 20 does not require, but recommends, disclosure of the effect on those income statement amounts of changes in accounting estimates made each period in the ordinary course of accounting for such items as uncollectible accounts or inventory obsolescence.

An illustrative example of the calculation and disclosure of the effects of an accounting change is as follows:

	(in thousands)
Assume, at the end of year 1:	
Contract revenue, at 50% complete	$ 50,000
Contract costs	45,000
Recognized profit	$ 5,000
Assume, at the end of year 2:	
Contract revenue (cumulative), at 90% complete	$105,000
Contract costs (cumulative)	90,000
Recognized profit, cumulative	$ 15,000
Recognized profit, year 2	$ 10,000

At the end of year 1, contract revenues at completion were estimated to be $100,000,000 (contract price) and contract costs at completion were estimated to be $90,000,000. However, at the end of year 2, contract revenues at completion were estimated to be $116,667,000, and contract costs were estimated to be $100,000,000. A change order agreed to in the

second year added $16,667,000 to estimated total revenues and $7,000,000 to estimated total costs. Because of inefficiencies not known at the end of year 1, it was later determined that estimated total contract costs (excluding the change order) should have been $93,000,000 and that the percentage of completion should have been 48.4 percent rather than 50 percent at the end of year 1.

	Revenues (in thousands)	*Costs (in thousands)*
Change order (agreed to in second year)	$ 16,667	$ 7,000
Revised estimate (made after change order)		3,000
Estimates of revenues and costs at completion—year 1	100,000	90,000
Estimates of revenues and costs at completion—year 2	$116,667	$100,000

The calculation of the effects of the changes in estimates on year 2 net income follows. The effect of the change order is excluded from the calculation since it is clearly a year 2 event. However, in most circumstances change orders would not have to be eliminated since their effect would be immaterial.

	(in thousands)
At the end of year 1, using revised estimates:	
Contract revenues (original contract)	$100,000
Contract costs (original contract)	93,000
Estimated total profit	$ 7,000
Percent complete (revised estimate)	48.4
Recognizable profit	$ 3,388
Profits recognized originally	5,000
Effect of change in estimate, before income taxes	$ 1,612
Income taxes at 50%	806
Effect of change in estimate	$ 806

The following is an example of disclosure of the effect of this change:

> Revisions in estimated contract profits are made in the year in which circumstances requiring the revision become known. The effect of changes in estimates of contract profits was to decrease net income of 19X2 by $806,000 ($.12 per share) from that which would have been reported had the revised estimate been used as the basis of recognition of contract profits in the preceding year.

Sample Financial Statements Percentage Contractors, Inc.

Independent Accountants' Report

The Shareholders and Board of Directors
Percentage Contractors, Inc.

We have examined the consolidated balance sheets of Percentage Contractors, Inc., and subsidiaries as of December 31, 19X8 and 19X7, and the related consolidated statements of income and retained earnings and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the financial position of Percentage Contractors, Inc., and subsidiaries at December 31, 19X8 and 19X7, and the results of their operations and the changes in their financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

(Firm Signature)
Certified Public Accountants

City, State
February 18, 19X9

Percentage Contractors, Inc.
Consolidated Balance Sheets
December 31, 19X8 and 19X7

Assets	*19X8*	*19X7*
Cash	$ 264,100	$ 221,300
Certificates of deposit	40,300	
Contract receivables (Note 2)	3,789,200	3,334,100
Costs and estimated earnings in excess of billings on uncompleted contracts (Note 3)	80,200	100,600
Inventory, at lower of cost, on a first-in, first-out basis, or market	89,700	99,100
Prepaid charges and other assets	118,400	83,200
Advances to and equity in joint venture (Note 4)	205,600	130,700
Note receivable, related company (Note 5)	175,000	150,000
Property and equipment, net of accumulated depreciation and amortization (Note 6)	976,400	1,019,200
	$5,738,900	$5,138,200

Liabilities and Shareholders' Equity	*19X8*	*19X7*
Notes payable (Note 8)	$ 468,100	$ 578,400
Lease obligations payable (Note 9)	197,600	251,300
Accounts payable (Note 7)	2,543,100	2,588,500
Billings in excess of costs and estimated earnings on uncompleted contracts (Note 3)	242,000	221,700
Accrued income taxes payable	52,000	78,600
Other accrued liabilities	36,600	36,000
Due to consolidated joint venture minority interests	154,200	26,200
Deferred income taxes (Note 13)	619,200	408,000
	4,312,800	4,188,700
Contingent liability (Note 10)		
Shareholders' equity		
Common stock—$1 par value, 500,000 authorized shares, 300,000 issued and outstanding shares	300,000	300,000
Retained earnings	1,126,100	649,500
Total shareholders' equity	1,426,100	949,500
	$5,738,900	$5,138,200

The accompanying notes are an integral part of these financial statements.

Percentage Contractors, Inc.
Consolidated Statements of Income and Retained Earnings
Years Ended December 31, 19X8 and 19X7

	19X8	*19X7*
Contract revenues earned	$22,554,100	$16,225,400
Cost of revenues earned	20,359,400	14,951,300
Gross profit	2,194,700	1,274,100
Selling, general, and administrative expense	895,600	755,600
Income from operations	1,299,100	518,500
Other income (expense)		
Equity in earnings from unconsolidated joint venture	49,900	5,700
Gain on sale of equipment	10,000	2,000
Interest expense (net of interest income of $8,800 in 19X8 and $6,300 in 19X7)	(69,500)	(70,800)
	(9,600)	(63,100)
Income before taxes	1,289,500	455,400
Provision for income taxes (Note 13)	662,900	225,000
Net income (per share, $2.09 (19X8); $.77 (19X7))	626,600	230,400
Retained earnings, beginning of year	649,500	569,100
	1,276,100	799,500
Less: Dividends paid (per share, $.50 (19X8); $.50 (19X7))	150,000	150,000
Retained earnings, end of year	$ 1,126,100	$ 649,500

The accompanying notes are an integral part of these financial statements.

Percentage Contractors, Inc.
Consolidated Statements of Changes in Financial Position
Years Ended December 31, 19X8 and 19X7

	19X8	*19X7*
Source of funds		
From operations		
Net income	$ 626,600	$230,400
Charges (credits) to income not involving cash and cash equivalents		
Depreciation and amortization	167,800	153,500
Deferred income taxes	211,200	(75,900)
Gain on sale of equipment	(10,000)	(2,000)
	995,600	306,000
Proceeds from equipment sold	25,000	5,000
Net increase in billings related to costs and estimated earnings on uncompleted contracts	40,700	10,500
Decrease in inventory	9,400	
Decrease in prepaid charges and other assets		16,100
Increase in accounts payable		113,200
Increase in other accrued liabilities	600	21,200
Increase in amount due to consolidated joint venture minority interests	128,000	26,200
Total	1,199,300	498,200
Use of funds		
Acquisition of equipment		
Shop and construction equipment	100,000	155,000
Automobiles and trucks	40,000	20,000
Dividends paid	150,000	150,000
Increase in contract receivables	455,100	9,100
Increase in inventory		3,600
Increase in advances to and equity in joint venture	74,900	15,400
Increase in note receivable, related company	25,000	50,000
Increase in prepaid charges and other assets	35,200	
Decrease in notes payable	110,300	90,300
Decrease in lease obligations payable	53,700	9,700
Decrease in accounts payable	45,400	
Decrease in accrued income taxes payable	26,600	2,400
Total	1,116,200	505,500
Increase (decrease) in cash and certificates of deposit for year	83,100	(7,300)
Cash and certificates of deposit		
Beginning of year	221,300	228,600
End of year	$ 304,400	$221,300

Percentage Contractors, Inc.
Notes to Consolidated Financial Statements
December 31, 19X8 and 19X7

1. Significant Accounting Policies

Company's activities and operating cycle. The company is engaged in a single industry: the construction of industrial and commercial buildings. The work is performed under cost-plus-fee contracts, fixed-price contracts, and fixed-price contracts modified by incentive and penalty provisions. These contracts are undertaken by the company or its wholly owned subsidiary alone or in partnership with other contractors through joint ventures. The company also manages, for a fee, construction projects of others.

The length of the company's contracts varies but is typically about two years. Therefore, assets and liabilities are not classified as current and noncurrent because the contract-related items in the balance sheet have realization and liquidation periods extending beyond one year.

Principles of consolidation. The consolidated financial statements include the company's majority-owned entities, a wholly owned corporate subsidiary and a 75 percent-owned joint venture (a partnership). All significant intercompany transactions are eliminated. The company has a minority interest in a joint venture (partnership), which is reported on the equity method.

Revenue and cost recognition. Revenues from fixed-price and modified fixed-price construction contracts are recognized on the percentage-of-completion method, measured by the percentage of labor hours incurred to date to estimated total labor hours for each contract.* This method is used because management considers expended labor hours to be the best available measure of progress on these contracts. Revenues from cost-plus-fee contracts are recognized on the basis of costs incurred during the period plus the fee earned, measured by the cost-to-cost method.

Contracts to manage, supervise, or coordinate the construction activity of others are recognized only to the extent of the fee revenue. The revenue earned in a period is based on the ratio of hours incurred to the total estimated hours required by the contract.

Contract costs include all direct material and labor costs and those indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs, and depreciation costs. Selling, general, and administrative costs are charged to expense as incurred. Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. Changes in job performance, job conditions,

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*There are various other alternatives to the percentage of labor hours method for measuring percentage of completion, which, in many cases, may be more appropriate in measuring the extent of progress toward completion of the contract (labor dollars, units of output, and the cost-to-cost method and its variations).

and estimated profitability, including those arising from contract penalty provisions, and final contract settlements may result in revisions to costs and income and are recognized in the period in which the revisions are determined. Profit incentives are included in revenues when their realization is reasonably assured. An amount equal to contract costs attributable to claims is included in revenues when realization is probable and the amount can be reliably estimated.

The asset, "Costs and estimated earnings in excess of billings on uncompleted contracts," represents revenues recognized in excess of amounts billed. The liability, "Billings in excess of costs and estimated earnings on uncompleted contracts," represents billings in excess of revenues recognized.

Property and equipment. Depreciation and amortization are provided principally on the straight-line method over the estimated useful lives of the assets. Amortization of leased equipment under capital leases is included in depreciation and amortization.

Pension plan. The company has a pension plan covering substantially all employees not covered by union-sponsored plans. Pension costs charged to earnings include current-year costs and the amortization of prior-service costs over 30 years. The company's policy is to fund the costs accrued.

Income taxes. Deferred income taxes are provided for differences in timing in reporting income for financial statement and tax purposes arising from differences in the methods of accounting for construction contracts and depreciation.

Construction contracts are reported for tax purposes on the completed-contract method and for financial statement purposes on the percentage-of-completion method. Accelerated depreciation is used for tax reporting, and straight-line depreciation is used for financial statement reporting.

Investment tax credits are applied as a reduction to the current provision for federal income taxes using the flow-through method.

2. Contract Receivables

	December 31, 19X8	*December 31, 19X7*
Contract receivables		
Billed		
Completed contracts	$ 621,100	$ 500,600
Contracts in progress	2,146,100	1,931,500
Retained	976,300	866,200
Unbilled	121,600	105,400
	3,865,100	3,403,700
Less: Allowances for doubtful collections	75,900	69,600
	$3,789,200	$3,334,100

Contract receivables at December 31, 19X8, include a claim, expected to be collected within one year, for $290,600 arising from a dispute with the owner over design and specification changes in a building currently under construction. The changes were made at the request of the owner to improve the thermal characteristics of the building and, in the opinion of counsel, gave rise to a valid claim against the owner.

The retained and unbilled contract receivables at December 31, 19X8, included $38,600 that was not expected to be collected within one year.

3. Costs and Estimated Earnings on Uncompleted Contracts

	December 31, 19X8	*December 31, 19X7*
Costs incurred on uncompleted contracts	$15,771,500	$12,165,400
Estimated earnings	1,685,900	1,246,800
	17,457,400	13,412,200
Less: Billings to date	17,619,200	13,533,300
	$ (161,800)	$ (121,100)
Included in accompanying balance sheets under the following captions:		
Costs and estimated earnings in excess of billings on uncompleted contracts	$ 80,200	$ 100,600
Billings in excess of costs and estimated earnings on uncompleted contracts	(242,000)	(221,700)
	$ (161,800)	$ (121,100)

4. Advances to and Equity in Joint Venture

The company has a minority interest (one-third) in a general partnership joint venture formed to construct an office building. All of the

partners participate in construction, which is under the general management of the company. Summary information on the joint venture follows:

	December 31, 19X8	*December 31, 19X7*
Current assets	$ 483,100	$280,300
Construction and other assets	220,500	190,800
	703,600	471,100
Less: Liabilities	236,800	154,000
Net assets	$ 466,800	$317,100
Revenue	$3,442,700	$299,400
Net income	$ 149,700	$ 17,100
Company's interest		
Share of net income	$ 49,900	$ 5,700
Advances to joint venture	$ 50,000	$ 25,000
Equity in net assets	155,600	105,700
Total advances and equity	$ 205,600	$130,700

(For the purposes of illustrative financial statements, the one-line equity method of presentation is used in both the balance sheet and the income statement. However, the pro rata consolidation method is acceptable if the investment is deemed to represent an undivided interest.)

5. Transactions With Related Party

The note receivable, related company, is an installment note bearing annual interest at 9¼%, payable quarterly, with the principal payable in annual installments of $25,000, commencing October 1, 19Y0.

The major stockholder of Percentage Contractors, Inc. owns the majority of the outstanding common stock of this related company, whose principal activity is leasing land and buildings. Percentage Contractors, Inc., rents land and office facilities from the related company on a ten-year lease ending September 30, 19Y6, for an annual rental of $19,000.

6. Property and Equipment

	December 31, 19X8	*December 31, 19X7*
Assets		
Land	$ 57,500	$ 57,500
Buildings	262,500	262,500
Shop and construction equipment	827,600	727,600
Automobiles and trucks	104,400	89,100
Leased equipment under capital leases	300,000	300,000
	1,552,000	1,436,700
Accumulated depreciation and amortization		
Buildings	140,000	130,000
Shop and construction equipment	265,600	195,500
Automobiles and trucks	70,000	42,000
Leased equipment under capital leases	100,000	50,000
	575,600	417,500
Net property and equipment	$ 976,400	$1,019,200

7. Accounts Payable

Accounts payable include amounts due to subcontractors, totaling $634,900 at December 31, 19X8, and $560,400 at December 31, 19X7, which have been retained pending completion and customer acceptance of jobs. Accounts payable at December 31, 19X8, include $6,500 that are not expected to be paid within one year.

8. Notes Payable

	December 31, 19X8	*December 31, 19X7*
Unsecured note payable to bank, due in quarterly installments of $22,575 plus interest at 1% over prime	$388,100	$478,400
Note payable to bank, collateralized by equipment, due in monthly installments of $1,667 plus interest at 10% through January, 19Y3	80,000	100,000
	$468,100	$578,400

At December 31, 19X8, the payments due within one year totaled $110,300.

9. Lease Obligations Payable

The company leases certain specialized construction equipment under leases classified as capital leases. The following is a schedule showing the future minimum lease payments under capital leases by years and the present value of the minimum lease payments as of December 31, 19X8:

Year ending December 31	
19X9	$ 76,500
19Y0	76,500
19Y1	76,500
Total minimum lease payments	229,500
Less: Amount representing interest	31,900
Present value of minimum lease payments	$197,600

At December 31, 19X8, the present value of minimum lease payments due within one year is $92,250.

Total rental expense, excluding payments on capital leases, totaled $86,300 in 19X8 and $74,400 in 19X7.

10. Contingent Liability

A claim for $180,000 has been filed against the company and its bonding company arising out of the failure of a subcontractor of the company to pay its suppliers. In the opinion of counsel and management, the outcome of this claim will not have a material effect on the company's financial position or results of operations.

11. Pension Plan

Pension costs charged to earnings were $61,400 in 19X8 and $57,300 in 19X7. At December 31, 19X8, the estimated actuarial value of vested benefits exceeded the fund assets (at market) and contribution accruals by $197,600.

12. Management Contracts

The company manages or supervises commercial and industrial building contracts of others for a fee. These fees totaled $121,600 in 19X8 and $1,700 in 19X7 and are included in contract revenues earned.

13. Income Taxes and Deferred Income Taxes

The provision for taxes on income consists of the following:

	December 31, 19X8	*December 31, 19X7*
Currently payable, net of investment credits of $9,400 and $13,800	$451,700	$300,900
Deferred		
Contract related	204,200	(80,900)
Property and equipment related	7,000	5,000
	$662,900	$225,000

At December 31 of the respective years, the components of the balance of deferred income taxes were:

	December 31, 19X8	*December 31, 19X7*
Contract related	$594,000	$389,800
Property and equipment related	25,200	18,200
	$619,200	$408,000

14. Backlog

The following schedule shows a reconciliation of backlog representing signed contracts, excluding fees from management contracts, in existence at December 31, 19X7 and 19X8:*

Balance, December 31, 19X7	$24,142,600
Contract adjustments	1,067,100
New contracts, 19X8	3,690,600
	28,900,300
Less: Contract revenue earned, 19X8	22,432,500
Balance, December 31, 19X8	$ 6,467,800

In addition, between January 1, 19X9 and February 18, 19X9, the company entered into additional construction contracts with revenues of $5,332,800.

*The presentation of backlog information, although encouraged, is not a required disclosure.

Sample Additional Information Percentage Contractors, Inc.

Independent Accountants' Report on Additional Information

The Shareholders and Board of Directors
Percentage Contractors, Inc.

Our examinations of the basic financial statements presented in the preceding section of this report were made primarily to form an opinion on such financial statements taken as a whole. The additional information, contained in the following pages, is not considered essential for the fair presentation of the financial position of Percentage Contractors, Inc., the results of its operations, or the changes in its financial position in conformity with generally accepted accounting principles. However, the following data were subjected to the audit procedures applied in the examinations of the basic financial statements and, in our opinion, are fairly stated in all material respects in relation to the basic financial statements taken as a whole.

(Firm Signature)
Certified Public Accountants

City, State
February 18, 19X9

Percentage Contractors, Inc.
Schedule 1
Earnings from Contracts
Year Ended December 31, 19X8

	19X8			*19X7*
	Revenues earned	*Cost of revenues earned*	*Gross profit (loss)*	*Gross profit (loss)*
Contracts completed during the year	$ 6,290,800	$ 5,334,000	$ 956,800	$ 415,300
Contracts in progress at year-end	16,141,700	14,636,900	1,504,800	921,400
Management contract fees earned	121,600	51,800	69,800	1,700
Unallocated indirect and warranty costs		46,700	(46,700)	(38,100)
Minority interest in joint venture		128,000	(128,000)	(26,200)
Charges on prior year contracts		162,000	(162,000)	
	$22,554,100	$20,359,400	$2,194,700	$1,274,100

Percentage Contractors, Inc.
Schedule 2
Contracts Completed
Year Ended December 31, 19X8

Contract		*Contract totals*			*Before January 1, 19X8*			*During the year ended December 31, 19X8*		
Number	*Type*	*Revenues earned*	*Cost of revenues*	*Gross profit (loss)*	*Revenues earned*	*Cost of revenues*	*Gross profit (loss)*	*Revenues earned*	*Cost of revenues*	*Gross profit (loss)*
1511	B	$ 5,475,300	$ 4,802,500	$ 672,800	$3,223,400	$2,932,700	$290,700	$2,251,900	$1,869,800	$382,100
1605	A	695,000	880,900	(185,900)	596,100	558,100	38,000	98,900	322,800	(223,900)
1624	A	140,700	150,700	(10,000)	29,600	31,800	(2,200)	111,100	118,900	(7,800)
1711	A	2,725,100	2,391,700	333,400	1,654,100	1,510,000	144,100	1,071,000	881,700	189,300
1791	B	4,770,100	4,288,900	481,200	3,028,500	2,929,600	98,900	1,741,600	1,359,300	382,300
1792	A	635,000	457,900	177,100				635,000	457,900	177,100
Small contracts		413,400	349,500	63,900	32,100	25,900	6,200	381,300	323,600	57,700
		$14,854,600	$13,322,100	$1,532,500	$8,563,800	$7,988,100	$575,700	$6,290,800	$5,334,000	$956,800

Contract types
A—Fixed-price.
B—Cost-plus-fee.

Percentage Contractors, Inc.
Schedule 3
Contracts in Progress
December 31, 19X8

Contract		Total contract		From inception to December 31, 19X8						At December 31, 19X8		For the year ended December 31, 19X8		
Number	*Type*	*Revenues*	*Estimated gross profit (loss)*	*Revenues earned*	*Total costs incurred*	*Cost of revenues*	*Gross profit (loss)*	*Billed to date*	*Estimated cost to complete*	*Costs and estimated earnings in excess of billings*	*Billings in excess of costs and estimated earnings*	*Revenues earned*	*Cost of revenues*	*Gross profit (loss)*
1845	A	$ 6,750,200	$ 877,000	$ 5,890,500	$ 5,244,500	$ 5,143,900	$ 746,600	$ 5,976,000	$ 628,700	$15,100		$ 5,664,200	$ 4,984,500	$ 679,700
1847	B	1,471,800	127,100	1,250,400	1,139,800	1,139,800	110,600	1,195,800	204,900	54,600		962,800	899,000	63,800
1912	A	451,800	(130,100)	108,600	238,700	238,700	(130,100)	98,100	343,200	10,500		98,600	191,500	(92,900)
1937	B	11,125,000	847,900	7,337,900	7,045,500	6,721,100	616,800	7,808,000	3,231,600		$145,700	6,981,900	6,469,900	512,000
1945	A	3,650,100	497,000	2,395,200	2,061,300	2,061,300	333,900	2,491,500	1,091,800		96,300	2,395,200	2,061,300	333,900
Small contracts		51,300	8,400	49,800	41,700	41,700	8,100	49,800	1,200			39,000	30,700	8,300
		$23,500,200	$2,227,300	$17,032,400	$15,771,500	$15,346,500	$1,685,900	$17,619,200	$5,501,400	$80,200	$242,000	$16,141,700	$14,636,900	$1,504,800

Contract types
A—Fixed-price.
B—Cost-plus-fee.

Sample Financial Statements Completed Contractors, Inc.

Independent Accountants' Report

The Stockholders and Board of Directors
Completed Contractors, Inc.

We have examined the balance sheets of Completed Contractors, Inc., as of December 31, 19X8 and 19X7, and the related statements of income and retained earnings and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the financial position of Completed Contractors, Inc., at December 31, 19X8 and 19X7, and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

(Firm Signature)
Certified Public Accountants

City, State
February 18, 19X9

Completed Contractors, Inc.
Balance Sheets
December 31, 19X8 and 19X7

Assets	*19X8*	*19X7*
Current assets		
Cash	$ 242,700	$ 185,300
Contract receivables (less allowance for doubtful accounts of $10,000 and $8,000) (Note 2)	893,900	723,600
Costs in excess of billings on uncompleted contracts (Note 3)	418,700	437,100
Inventories, at lower of cost or realizable value on first-in, first-out basis (Note 4)	463,600	491,300
Prepaid expenses	89,900	53,900
Total current assets	2,108,800	1,891,200
Cash value of life insurance	35,800	32,900
Property and equipment, at cost		
Building	110,000	110,000
Equipment	178,000	163,000
Trucks and autos	220,000	200,000
	508,000	473,000
Less: Accumulated depreciation	218,000	203,200
	290,000	269,800
Land	21,500	21,500
	311,500	291,300
	$2,456,100	$2,215,400

Liabilities and Stockholders' Equity	*19X8*	*19X7*
Current liabilities		
Current maturities, long-term debt (Note 5)	$ 37,000	$ 30,600
Accounts payable	904,900	821,200
Accrued salaries and wages	138,300	155,100
Accrued income taxes	53,000	36,200
Accrued and other liabilities	116,400	55,550
Billings in excess of costs on uncompleted contracts (Note 3)	34,500	43,700
Total current liabilities	1,284,100	1,142,350
Long-term debt, less current maturities (Note 5)	245,000	241,000
	1,529,100	1,383,350
Stockholders' equity		
Common stock—$10 par value, 50,000 authorized shares, 23,500 issued and outstanding shares	235,000	235,000
Additional paid-in capital	65,000	65,000
Retained earnings	627,000	532,050
	927,000	832,050
	$2,456,100	$2,215,400

The accompanying notes are an integral part of these financial statements.

Completed Contractors, Inc.
Statements of Income and Retained Earnings
Years Ended December 31, 19X8 and 19X7

	19X8	*19X7*
Contract revenues	$9,487,000	$8,123,400
Costs and expenses		
Cost of contracts completed	8,458,500	7,392,300
General and administrative	684,300	588,900
Interest expense	26,500	23,000
	9,169,300	8,004,200
Income before income taxes	317,700	119,200
Income taxes	164,000	54,200
Net income ($6.54 and $2.77 per share)	153,700	65,000
Retained earnings		
Balance, beginning of year	532,050	525,800
	685,750	590,800
Dividends paid ($2.50 per share)	58,750	58,750
Balance, end of year	$ 627,000	$ 532,050

The accompanying notes are an integral part of these financial statements.

Completed Contractors, Inc.
Statements of Changes in Financial Position
Years Ended December 31, 19X8 and 19X7

	19X8	*19X7*
Source of working capital		
Net income	$153,700	$ 65,000
Charge to income not requiring outlay of working capital—depreciation	54,800	50,300
Working capital from operations	208,500	115,300
Proceeds of notes payable	44,000	68,000
	252,500	183,300
Use of working capital		
Purchase of property and equipment	75,000	53,500
Reduction of long-term debt	40,000	28,000
Payment of dividends	58,750	58,750
Increase in cash value of life insurance	2,900	2,685
	176,650	142,935
Increase in working capital	$ 75,850	$ 40,365
Changes in components of working capital		
Increase (decrease) in current assets		
Cash	$ 57,400	$ (26,435)
Contract receivables	170,300	36,500
Costs in excess of billings on uncompleted contracts	(18,400)	49,100
Inventories	(27,700)	3,400
Prepaid expenses	36,000	(16,500)
	217,600	46,065
Decrease (increase) in current liabilities		
Current maturities, long-term debt		
Notes payable, bank	(6,000)	(12,000)
Mortgage payable	(400)	(500)
Accounts payable	(83,700)	(24,600)
Accrued salaries and wages	16,800	(24,300)
Accrued income taxes	(16,800)	6,300
Accrued and other liabilities	(60,850)	33,100
Billings in excess of costs on uncompleted contracts	9,200	16,300
	(141,750)	(5,700)
Increase in working capital	$ 75,850	$ 40,365

The accompanying notes are an integral part of these financial statements.

Completed Contractors, Inc.
Notes to Financial Statements
December 31, 19X8 and 19X7

1. Significant Accounting Policies

Company's activities. The company is a heating and air-conditioning contractor for residential and commercial properties. Work on new structures is performed primarily under fixed-price contracts. Work on existing structures is performed under fixed-price or time-and-material contracts.

Revenue and cost recognition. Revenues from fixed-price construction contracts are recognized on the completed-contract method. This method is used because the typical contract is completed in two months or less and financial position and results of operations do not vary significantly from those which would result from use of the percentage-of-completion method. A contract is considered complete when all costs except insignificant items have been incurred and the installation is operating according to specifications or has been accepted by the customer.

Revenues from time-and-material contracts are recognized currently as the work is performed.

Contract costs include all direct material and labor costs and those indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs, and depreciation costs. General and administrative costs are charged to expense as incurred. Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. Claims are included in revenues when received.

Costs in excess of amounts billed are classified as current assets under costs in excess of billings on uncompleted contracts. Billings in excess of costs are classified under current liabilities as billings in excess of costs on uncompleted contracts. Contract retentions are included in accounts receivable.

Inventories. Inventories are stated at cost on the first-in, first-out basis using unit cost for furnace and air-conditioning components and average cost for parts and supplies. The carrying value of furnace and air-conditioning component units is reduced to realizable value when such values are less than cost.

Property and equipment. Depreciation is provided over the estimated lives of the assets principally on the declining-balance method, except on the building where the straight-line method is used.

Pension plan. The company has a pension plan covering all employees not covered by union-sponsored plans. Pension costs charged to income include current-year costs and the amortization of prior-service costs over 30 years. The company's policy is to fund the costs accrued.

Investment tax credit. Investment tax credits are applied as a reduction to the current provision for federal income taxes using the flow-through method.

2. Contract Receivables

	December 31, 19X8	*December 31, 19X7*
Completed contracts, including retentions	$438,300	$408,600
Contracts in progress		
Current accounts	386,900	276,400
Retentions	78,700	46,600
	903,900	731,600
Less: Allowance for doubtful accounts	10,000	8,000
	$893,900	$723,600

Retentions include $10,300 in 19X8, which are expected to be collected after 12 months.

3. Costs and Billings on Uncompleted Contracts

	December 31, 19X8	*December 31, 19X7*
Costs incurred on uncompleted contracts	$2,140,400	$1,966,900
Billings on uncompleted contracts	1,756,200	1,573,500
	$ 384,200	$ 393,400
Included in accompanying balance sheets under the following captions:		
Costs in excess of billings on uncompleted contracts	$ 418,700	$ 437,100
Billings in excess of costs on uncompleted contracts	(34,500)	(43,700)
	$ 384,200	$ 393,400

4. Inventories

	December 31, 19X8	*December 31, 19X7*
Furnace and air-conditioning components	$303,200	$308,700
Parts and supplies	160,400	182,600
	$463,600	$491,300

Furnace and air-conditioning components include used items of $78,400 in 19X8 and $71,900 in 19X7 that are carried at the lower of cost or realizable value.

5. Long-Term Debt

	December 31, 19X8	*December 31, 19X7*
Notes payable, bank		
Notes due in quarterly installments of $2,500, plus interest at 8%	$140,000	$150,000
Notes due in monthly installments of $1,500, plus interest at prime plus 1½%	87,000	58,000
Mortgage payable		
Due in quarterly payments of $3,500, including interest at 9%	55,000	63,600
	282,000	271,600
Less: Current maturities	37,000	30,600
	$245,000	$241,000

6. Pension Plans

The total pension expenses for the years 19X8 and 19X7 were $31,200 and $27,300, including contributions to union-sponsored plans.

At December 31, 19X8, the estimated actuarial value of vested benefits of the company's plan exceeded the fund assets (at market) and contribution accruals by $48,000.

7. Backlog

The estimated gross revenue on work to be performed on signed contracts was $4,691,000 at December 31, 19X8, and $3,617,400 at December 31, 19X7. In addition to the backlog of work to be performed, there was gross revenue, to be reported in future periods under the completed-contract method used by the company, of $2,460,000 at December 31, 19X8, and $2,170,000 at December 31, 19X7.*

*The presentation of backlog information, although encouraged, is not a required disclosure.

Glossary

This glossary includes terms that have specialized meanings when used in this guide and in the construction industry.

back charges. Billings for work performed or costs incurred by one party that, in accordance with the agreement, should have been performed or incurred by the party to whom billed. Owners bill back charges to general contractors, and general contractors bill back charges to subcontractors. Examples of back charges include charges for cleanup work and charges for a subcontractor's use of a general contractor's equipment.

backlog. The amount of revenue that a contractor expects to be realized from work to be performed on uncompleted contracts, including new contractual agreements on which work has not begun.

bid. A formal offer by a contractor, in accordance with specifications for a project, to do all or a phase of the work at a certain price in accordance with the terms and conditions stated in the offer.

bid bond. A bond issued by a surety on behalf of a contractor that provides assurance to the recipient of the contractor's bid that, if the bid is accepted, the contractor will execute a contract and provide a *performance bond.* Under the bond, the surety is obligated to pay the recipient of the bid the difference between the contractor's bid and the bid of the next lowest responsible bidder if the bid is accepted and the contractor fails to execute a contract or to provide a performance bond. (See chapter 1, "Bonding and the Surety Underwriting Process.")

bid security. Funds or a *bid bond* submitted with a bid as a guarantee to the recipient of the bid that the contractor, if awarded the contract, will execute the contract in accordance with the bidding requirements and the contract documents.

bid shopping. A practice by which contractors, both before and after their bids are submitted, attempt to obtain prices from potential subcontractors and material suppliers that are lower than the contractors' original estimates on which their bids are based or, after a contract is awarded,

seek to induce subcontractors to reduce the subcontract price included in the bid.

bidding requirements. The procedures and conditions for the submission of bids. The requirements are included in documents such as the notice to bidders, advertisement for bids, instructions to bidders, invitations to bid, and sample bid forms.

bonding capacity. The total dollar value of construction bonds that a surety will underwrite for a contractor, based on the surety's predetermination of the overall volume of work that the contractor can handle.

bonding company. A company authorized to issue *bid bonds, performance bonds, labor and materials bonds,* or other types of surety bonds.

bonus clause. A provision in a construction contract that provides for payments to the contractor in excess of the basic contract price as a reward for meeting or exceeding various contract stipulations, such as the contract completion date or the capacity, quality, or cost of the project.

broker. A party that obtains and accepts responsibility as a *general contractor* for the overall performance of a contract but enters into *subcontracts* with others for the performance of virtually all construction work required under the contract.

builders' risk insurance. Insurance coverage on a construction project during construction, including extended coverage that may be added for the contractor's protection or required by the contract for the customer's protection.

building codes. The regulations of governmental bodies specifying the construction standards that buildings in a jurisdiction must meet.

building permit. An official document issued by a governing body for the construction of a specified project in accordance with drawings and specifications approved by the governing body.

change orders. Modifications of an original contract that effectively change the provisions of the contract without adding new provisions. They include changes in specifications or design, method or manner of performance, facilities, equipment, materials, site, and period for completion of work. (See paragraph 61 of the SOP.)

claims. Amounts in excess of the agreed contract price that a contractor seeks to collect from customers or others for customer-caused delays, errors in specifications and designs, unapproved change orders, or other causes of unanticipated costs. (See paragraph 65 of the SOP.)

completed and accepted. A procedure relating to the time for closing jobs

for tax purposes under the completed-contract method of accounting that allows closing a job when construction is physically completed and the customer has formally accepted the project as defined in the contract.

completion bond. A document providing assurance to the customer and the financial institution that the contractor will complete the work under the contract and that funds will be provided for the completion.

construction loan. Interim financing for the development and construction of real property.

construction management contractor. A party who enters into an agency contract with the owner of a construction project to supervise and coordinate the construction activity on the project, including negotiating contracts with others for all the construction work. (See chapter 1, "Nature and Significance of the Industry.")

contract bond. An approved form of security executed by a contractor and a surety for the execution of the contract and all supplemental agreements, including the payment of all debts relating to the construction of the project.

contract cost breakdown. An itemized schedule prepared by a contractor after the receipt of a contract showing in detail the elements and phases of the project and the cost of each element and phase.

contract item (pay item). An element of work, specifically described in a contract, for which the contract provides either a unit or lump-sum price.

contract overrun (underrun). The amount by which the original contract price, as adjusted by *change orders*, differs from the total cost of a project at completion.

contract payment bond. The security furnished by the contractor to guarantee payment for labor and materials obtained in the performance of the contract. (See *payment (labor and materials) bond.*)

contract performance bond. The security furnished by the contractor to guarantee the completion of the work on a project in accordance with the terms of the contract. (See *performance bond.*)

Critical Path Method (C.P.M.). A network scheduling method that shows the sequences and interdependencies of activities. The critical path is the sequence of activities that shows the shortest time path for completion of the project.

draw. The amount of *progress billings* on a contract that is currently available to a contractor under a contract with a fixed payment schedule.

escalation clause. A contract provision that provides for adjustments of the price of specific items as conditions change (for example, a provision that requires wage rates to be determined on the basis of wage levels established in agreements with labor unions).

estimate (bid function). The amount of labor, materials, and other costs that a contractor anticipates for a project, as summarized in the contractor's bid proposal for the project.

estimated cost to complete. The anticipated additional cost of materials, labor, and other items required to complete a project at a scheduled time.

extras (customer's extras). Additional work, not included in the original plan, requested of a contractor that will be billed separately and will not alter the original contract amount. (See chapter 1, "Contract Changes.")

final acceptance. The customer's acceptance of the project from the contractor on certification by an architect or engineer that the project is completed in accordance with contract requirements. The customer confirms final acceptance by making final payment under the contract unless the time for making the final payment is otherwise stipulated.

final inspection. The final review of the project by an architect or engineer before issuance of the final certificate for payment.

front-end loading. A procedure under which *progress billings* are accelerated in relation to costs incurred by assigning higher values to contract portions that will be completed in the early stages of a contract than to those portions that will be completed in the later stages so that cash receipts from the project during the early stages will be higher than they otherwise would be.

general contractor. A contractor who enters into a contract with the owner of a project for the construction of the project and who takes full responsibility for its completion, although the contractor may enter into *subcontracts* with others for the performance of specific parts or phases of the project. (See chapter 1, "Nature and Significance of the Industry.")

incentives. (See *bonus clause* and *penalty clause*.)

joint venture. An entity owned, operated, and jointly controlled by a small group of participants as a separate and specific business or project for the mutual benefit of the participants, including arrangements for pooling equipment, bonding, financing, and sharing skills (such as engineering, design, and construction). (See chapter 1, "Joint Ventures.")

letter agreement (letter of agreement). A letter stating the terms of an

agreement between addressor and addressee, usually prepared for signature by the addressee as indication of acceptance of those terms as legally binding.

letter of intent. A letter signifying an intention to enter into a formal agreement and usually setting forth the general terms of such an agreement.

lien. An encumbrance that usually makes real or personal property the security for payment of a debt or discharge of an obligation.

liquidated damages. Construction contract clauses obligating the contractor to pay specified daily amounts to the project owner as compensation for damages suffered by the owner because of the contractor's failure to complete the work within a stated time.

loss contract. A contract on which the estimated cost to complete exceeds the contract price.

maintenance bond. A document, given by the contractor to the owner, guaranteeing to rectify defects in workmanship or materials for a specified time following completion of the project. A one-year bond is normally included in the performance bond.

mechanics lien. A lien on real property, created by statute in many areas, in favor of persons supplying labor or materials for a building or structure, for the value of labor or materials supplied by them. In some jurisdictions, a mechanics lien also exists for the value of professional services. Clear title to the property cannot be obtained until the claim for the labor, materials, or professional services is settled. Timely filing is essential to support the encumbrance, and prescribed filing dates vary by jurisdiction.

negotiated contract. A contract for construction developed through negotiation of plans, specifications, terms, and conditions without competitive bidding.

payment (labor and materials) bond. A bond executed by a contractor to protect suppliers of labor, materials, and supplies to a construction project.

penalty clause. A provision in a construction contract that provides for a reduction in the amount otherwise payable under a contract to a contractor as a penalty for failure to meet targets or schedules specified in the contract or for failure of the project to meet contract specifications.

performance bond. A bond issued by a surety and executed by a contractor to provide protection against the contractor's failure to perform a contract in accordance with its terms. (See chapter 1, "Bonding and the Surety Underwriting Process.")

prequalification. The written approval of an agency seeking bids on a project that authorizes a contractor to submit a bid on the project in circumstances in which bidders are required to meet certain standards.

prime contract. A contract between an owner of a project and a contractor for the completion of all or a portion of a project under which the contractor takes full responsibility for the completion of the work.

prime contractor. A contractor who enters into a contract with the owner of the project for the completion of all or a portion of the project and who takes full responsibility for its completion. (See *general contractor.*)

progress (advance) billings. Amounts billed, in accordance with the provisions of a contract, on the basis of progress to date under the contract.

punch list. A list made near the completion of work indicating items to be furnished or work to be performed by the contractor or subcontractor in order to complete the work as specified in the contract.

quantity takeoffs. An itemized list of the quantities of materials and labor required for a project, with each item priced and extended, which is used in preparing a bid on the project.

retentions. Amounts withheld from progress billings until final and satisfactory project completion.

specifications (specs). A written description of the materials and workmanship required on a project (as shown by related working drawings), including standard and special provisions related to the quantities and qualities of materials to be furnished under the contract.

stop order. A formal notification to a contractor to discontinue some or all work on a project for reasons such as safety violations, defective materials or workmanship, or cancellation of the contract.

subcontract. A contract between the *prime contractor* and another contractor or supplier to perform specified work or to supply specified materials in accordance with plans and specifications for the project.

subcontractor bond. A bond executed by a subcontractor and given to the *prime contractor* to assure the subcontractor's performance on the *subcontract*, including the payment for all labor and materials required for the *subcontract*.

substantial completion. The point at which the major work on a contract is completed and only insignificant costs and potential risks remain. Revenue from a contract is recognized under the completed-contract method when the contract is substantially completed. (See paragraph 52 of the SOP.)

surety. (See *bonding company.*)

turnkey project. A project for which a contractor undertakes under contract to deliver a fully operational and tested facility before being entitled to payment.

unbalanced bid. A bid proposal under which the contract price is allocated to phases or items in the contract on a basis other than that of cost plus overhead and profit for each bid item or phase. A common practice is to *front-end load* a bid proposal to obtain working capital to finance the project. Another form of unbalanced bid on unit-price contracts assigns higher profits to types of work for which the quantities are most likely to be increased during the performance of the contract.

waiver of lien. An instrument by which the holder of a *mechanics or materials lien* against property formally relinquishes that right.

warranty (maintenance) period. A specified period, which is normally specified in the contract, after the completion and acceptance of a project, during which a contractor is required to provide maintenance construction, and for which the contractor is required to post a *maintenance bond.*